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ABSTRACT OF A

Presidential Address

ON

CONSIDERATIONS,

BACTERIOLOGICAL, TOXICOLOGICAL, HÆMATOLOGICAL,

AND OTHERS THERETO AKIN, BEARING UPON

THE PSYCHOSES.

Delivered before the Medico-Psychological Association of Great Britain and Ireland on July 10th, 1923,

BY EDWIN GOODALL, C.B.E., M.D., B.S.,
F.R.C.P. LOND.,
MEDICAL SUPERINTENDENT, CARDIFF MENTAL HOSPITAL.

IN the course of toxic and febrile processes, such as occur in association with typhoid, erysipelas, malaria, pneumonia, influenza, psychoses may arise. Amongst infection-psychoses may be counted insanity of the puerperium; in association with epidemic encephalitis various psychoses develop, a fact of significance in the problems of the pathogenesis of these states. Of peculiar interest is the occurrence of disorders of motility in the course of and after this disease, resembling muscular disorders in katalepsy and katatonia. A recent and valuable addition to the literature of this subject is furnished in an article by Skliar, who has had the unusual experience of seeing mental disturbances in the course of typhus and relapsing fever, prevalent in Russia during the three winters, 1918–1920, inclusive. He also describes five cases of lyssa in which psychotic disturbances occurred. These disturbances also occur as a result of poisoning by alcohol and drugs such as hashish (*Cannabis indica*), lead, and mercury.

THE TOXIC FACTOR.

These disorders of mind, occurring in febrile processes, cannot be due solely to febrile disturbance; the toxic factor must be taken into account. We must persist in the inquiry as to whether certain of the insanities, of everyday occurrence and of unknown origin, and which, prima facie, appear to be of toxic origin are, in fact, ascribable to exogenous or endogenous toxins. To seek experimental evidence which would establish the presence of a toxin as the cause of any variety of mental disorder of unknown origin is a sobering experience, although some people seem to be on terms of familiarity with the toxins of the psychoses, especially as regards the toxins hailing from the bowel.

The evidence furnished by the morbid histology of the brain in the acute and recent psychoses is not in favour of anything approaching a virulent toxæmia, with the possible exception of the condition known as "acute delirium" or "acute delirious mania." Neither clinically (temperature, pulse, respiration) is there definite evidence of a febrile process. Yet, as certain drugs are toxins, able, though not virulent, to produce very definite mental disorder, whilst incapable of producing the bodily disturbance associated with a specific fever, so unknown proteins or their derivatives may function as toxins and cause some of the psychoses, and be responsible for such changes in the brain as the microscope reveals. We must look to biochemical research to help us in the supremely difficult problems of perverted metabolism.

[Dr. Goodall then gave a survey of the results of work in examination of blood, urine, cerebro-spinal fluid, and fæces, and continued as follows:]

The observations recorded are not in favour of a theory of toxæmia, referable to the action of intestinal bacteria, as a cause of the acute mental disorders investigated. But regard must be had to the great labour involved in this kind of work, and therefore the need for many workers, to accumulate results on a large scale. And better methods for detecting and cultivating intestinal organisms may come to our aid. As to this, reference may be made to articles in THE LANCET of July 15th, 1922, p. 127, and the *Journal of Mental Science*, of January, 1923, by Dr. Chalmers Watson, upon the intestinal flora as revealed by the use of a new culture-medium. Ford Robertson in his writings describes several cases of psychoses in which he found an abnormal intestinal flora. Constipation, stercoral retention, toxæmia, acute psychosis—this is the order of events, according to the expounders and the scribes. They can point to the remarkable effects sometimes produced by free purging upon the psychoses, and upon the psychical ebullitions of many persons outside asylums and of the chronic insane in them. But the factors operative, the mode of operation, the links in the chain—in regard to all these, our information is rudimentary. The hardihood which permits of the continued references to an alleged undue occurrence of "indican" (potassium-indoxyl sulphate) in the urine, pointing to auto-intoxication from the bowel, is astonishing, and betrays ignorance of the valuable work done by Stanford (1910–1912) in the Chemical Laboratory at the Cardiff City Mental Hospital.† Stanford's findings still hold good. No value attaches to the so-called "indican" evidence of intestinal toxæmia.

Is there satisfactory evidence that disinfectants, such as izal, kerol, dimol, when given by the mouth favourably influence mental disorders of any kind? I am not aware of any. I have personally tried various disinfectants for years. Recently 11 cases of acute and recent mental disorder (melancholia, confusional states, delusional states), and one of chronic hypochondriasis, were treated with dimol in powder form, four of them receiving 8 gr. of the powder and eight 12 gr. of the same, thrice daily (1 part of dimol in 3 parts of the powder), in most cases for several weeks or months. Five other similar cases were given one kerol capsule thrice daily for like prolonged periods. It cannot be said that any dramatic or decisive results were observed in cases which improved or recovered. Nevertheless, in my opinion, such drugs are worth extensive trial for long periods, preferably combined with lavage of the whole large intestine.

In connexion with the subject of bacteria as factors, through their toxins, in determining mental disorders, the observations of Ford Robertson, as recorded in his work on therapeutic immunisation—and in his paper published in the *Journal of Mental Science* of January, 1922, which deals with the special case of dementia præcox—should be studied. Here I can do no more than indicate his main conclusions. According to him, there would appear to be several types of neurotoxic bacterial infection to which the cortical nerve-cells of patients with predisposition to mental disorders show extreme sensitiveness. Three forms of infection are especially prominent—viz., by aerobic and anaerobic diphtheroid bacilli (first and foremost), by pneumococci, by anaerobic streptothrices of the intestines. *Streptococcus pyogenes* and *Streptococcus fæcalis hæmolyticus* also play a part. The bacterial actions are mostly exercised through toxins carried from foci of infection in the alimentary, respiratory, or genito-urinary tracts. Diphtheroid bacilli have frequently been cultivated from the blood in cases of acute toxic insanity and general paralysis. The pathogenic action of these organisms is demonstrated by focal reactions, by hypersensitiveness to autogenous vaccines, by the success of therapeutic immunisation in relieving symptoms, and by the comparative paucity or complete disappearance of the bacteria upon repetition of the bacteriological examination when the patient had recovered partially or completely.

* This address will appear in full in the Journal of Mental Science, October, 1923.

† Published in the Zeitschr. f. physiologische Chemie (Bände 87, H. 3, and 88, H. 1).

Although, as far as my reading goes, very little notice has been taken of Ford Robertson's work in either English or foreign literature, my opinion is that this work cannot be ignored, and should be repeated on the lines indicated by him. This would involve bacteriological examination by aerobic and anaerobic methods of the naso-pharynx, of the stools, and of the urine, using, amongst other media, the hæmoglobin-agar introduced by Ford Robertson and Orr, a medium which is very rarely employed. The extensive work of Cotton and his associates on focal infection in mental disorders is an additional argument for the cultivation of this field of research. Amongst sites of focal infection are the teeth, tonsils, naso-pharynx, gastro-intestinal tract, and genito-urinary tract. The improvement in mental disorders recorded as following removal of sources of infection, and vaccination with organisms found, is clinical evidence, at any rate, of toxæmia.

Time will not allow me to deal further with this portion of my theme. I content myself with drawing attention to an observation recorded by Scholberg and myself. In the wash-out (with normal saline) of the fasting stomach in cases of insanity at adolescence (many of these of the dementia præcox group) we found pus cells in a very large proportion—about 60 out of 68 cases. I understand from Dr. H. A. Scholberg, who is pathologist to the Cardiff Royal Infirmary and to the Cardiff Mental Hospital, that these are not found, in his experience, amongst the usual infirmary patients, apart from instances of lesions of the gastric mucosa. This would appear to dispose of the decayed-teeth hypothesis. Possibly some focus in the naso-pharynx was the original source of these pus cells. The matter is at present obscure.

TOXICITY OF BLOOD, CEREBRO-SPINAL FLUID, AND URINE IN MENTAL DISORDERS.

The following summary of information bearing upon the question of the toxicity of the blood, cerebro-spinal fluid, and urine of cases of mental disorder may be recorded. In the course of experimental work done personally or in conjunction with co-workers (Drs. Scholberg and Cameron), a very large number of rabbits and fowls have been injected with blood serum, or blood corpuscles, or the stroma of such, from all the main clinical varieties of insanity, including cases of violent mania, profound melancholia, dementia præcox in its various forms, epilepsy, and dementia paralytica. The losses of weight and the deaths resulting from injections with serum and blood corpuscles were fully equalled by those observed in control animals injected with the like from healthy blood; so that effects a priori ascribable to a toxic cause were, in fact, not due to such. In the case of injection with the stroma of r.b.c., whilst heavy death- and loss of weight-rates obtained in animals injected from the cases of acute insanity, there were no losses and no deaths in the case of those injected with control blood. On this point further experience is necessary.

The small proportion of deaths in fowls compared with rabbits (serum used in both) argues greater resistance in the former. Contrary to what has been affirmed, we did not find the fowl a better precipitin-producer than the rabbit.

Meyer's experiments upon toxicity of the blood of epileptics show the need for further research on the point, and preferably with animals higher in the scale than those used by him. Ten of 11 guinea-pigs injected intraperitoneally with 10–15 c.cm. of defibrinated blood from normal persons showed no symptoms. The eleventh died after convulsions. Of ten guinea-pigs injected with blood removed during an epileptic seizure, nine had typical tonic clonic convulsions in from 1 to 5 hours after injection. Blood removed in the interval between fits affected the animals according to the time elapsing since the last seizure and to the severity of the disease. Preda and Popea (cited by Barbé) state that the serum of epileptics is not toxic for man. Cuneo has recently described a research by which he has obtained from the blood serum of epileptics albumoses, which, injected intravenously into dogs, produce the characteristic phenomena of convulsive seizure. He ascribes epileptic seizures to the action of these albumoses. His paper describes the mode of formation of these substances in the blood of epileptics. Loewe found that the dried insoluble portion of the adialysable substance of urine is, in the katatonic type of dementia præcox, in dementia paralytica (after seizures), and in delirium tremens, highly toxic. In epilepsy it is, in addition, capable of producing seizures very like epileptic ones, injected intravenously. Similar adialysate from the urine of normal persons is not toxic. I consider that further work requires to be done on this subject of toxicity of the body fluids, subdural and intraperitoneal injections being employed.

CHANGES IN THE LEUCOCYTE COUNT.

The existence of leucocytosis in toxic conditions has naturally led various workers to seek for evidence of toxicity in the psychoses as shown by quantitative and qualitative changes in the leucocyte count. I would summarise present knowledge in regard to the leucocyte count in those mental disorders in which it has principally, if not wholly, been investigated as follows:—

Insanity of Adolescence (Dementia Præcox).—In the earlier phases there is a moderate increase in the total white-cell count, with relative increase of the neutrophiles. Thereafter, in marked exacerbations of the morbid processes, these increases are more pronounced. The progress towards dementia is characterised by a relative lymphocytosis, with a low total count. There is not sufficient evidence of differences—quantitative or qualitative—in the cell counts in the different forms of dementia præcox.

Insanity with Epilepsy.—There is a considerable degree of accord between observers, the results showing leucocytosis and polynucleosis with hypo-eosinophilia in connexion with seizures, uncharacteristic conditions obtaining in the intervals.

Mania—Melancholia.—A high total count, with relative neutrophile increase at the onset; these subside as the disease progresses; perhaps a second minor increase accompanies symptoms of recovery. The persistence of this, with a normal percentage of neutrophiles after recovery, is a favourable sign (Bruce). A fall in the neutrophile percentage without mental improvement is an unfavourable sign (McDowall). In unfavourable cases the counts are variable, and lymphocytosis becomes apparent with the lapse of time. In subacute and chronic conditions, lymphocytes predominate (Klippel and Léfas).

More evidence is required as to subacute and long-lasting cases, and as to the count at the stage when it is apparent that recovery is to take place. Whilst statements as to isolated occasional white-cell counts in acute mania and melancholia are pretty frequent, it is remarkable how few have conducted inquiry in these conditions over long periods. This criticism, as I have indicated, applies to the cell counts in the psychoses generally, but one would have thought an exception would have been made in cases of the particular kind just discussed, conveying strongly, as they do, the impression of toxic pathogenesis. In puerperal insanity the leucocyte count resembles that of acute mania.

States of Acute Confusion.—Leucocytosis: polynuclear increase (both moderate); hypo-eosinophilia; these pass away with decline of the illness and recovery.

Dementia Paralytica.—In the first stage moderate leucocytosis with relative neutrophile increase; in the early second stage, these conditions continue, but in the later second and in the third stages, whilst the moderate leucocytosis is maintained, the lymphocytes, small and large, are relatively increased at the expense of the neutrophiles. A relative polynucleosis, with frequently only a slight increase in the total count, accompanies the febrile attacks of the later stages,

also the paralytic seizures. In states of remission and of marked quiescence there is a relative lymphocytosis, replaced by polynucleosis on the occurrence of exacerbations. The evidence furnished by the leucocyte count in the psychoses dealt with is in favour of toxæmia, not a grave form of it.

The observations of Pfeiffer and de Crinis, published in 1913, relative to the increase of anti-proteolytic substances (as brought out by the antitrypsin test) in the serum of cases of the "organic" as distinguished from the "functional" and constitutional psychoses, are borne out by Bolten's observations, made in 1918, but still require confirmation. In case of confirmation it remains that the nature of the antitryptic substances (so-called "defence-ferments") is unknown. More work appears to have been done on the continent with Abderhalden's method, which is declared to demonstrate the presence in the serum of protective ferments against break-down products of parenteral protein—e.g., from the cerebral cortex, genital glands, &c. These ferments are stated to be present in cases of dementia paralytica and dementia præcox, but not in "functional" and "constitutional" psychoses—e.g., manic-depressive, paranoia. These findings are still in dispute. The latest work with which I am acquainted is that of Ewald, to which I would refer those interested.

Effects of Intercurrent Maladies on Mental Disorder.

Efforts to ameliorate or cure mental disorder prompted by the observed effects in these directions of intercurrent maladies are familiar to us all. They are sometimes dramatic. Probably typhoid, erysipelas, and malaria are most efficacious, but pneumonia is also potent, as is also a septic infection. A febrile reaction is not an essential factor in the production of improvement or cure of the insanity. I should say that mania, melancholia, confusional, and stuporose states are chiefly benefited by intercurrent disease. Intercurrent disease may bring about remarkable remissions in dementia paralytica; remissions of extraordinary length are recorded.

The attempt to imitate the effect of intercurrent disorders by the subcutaneous injection of nucleinic acid, or sodium nucleinate, dates back to about 1909. Sodium nucleinate was probably chosen because of its ability to produce a decided leucocytosis. Recently "phlogetan," a substance stated to be a derivative of albuminoid bodies containing nucleo-protein from cell-contents, has been employed by Fischer and others as being more intensive in action than nuclein. The work of these authors shows that a leucocytosis results from these injections, and, in my experience, with sodium nucleinate the injection results in leucocytosis with a considerable proportionate rise in the neutrophile count. The pulse-rate was increased in my observations, but rise in temperature was not marked. Having regard to the results recorded by the above workers in cases of dementia præcox, and by others in psychoses with indications of a toxic origin, one would have thought that this treatment, associated with the use of colloidal metals, which also produce leucocytosis, with increase in the neutrophile percentage, would have been more persistently and extensively tried.

From a paper published by Gerstmann in 1922, it appears that the Vienna School, under Prof. Wagner-Jauregg, who instituted the treatment, is still systematically carrying out the treatment of dementia paralytica by the subcutaneous injection (accompanied or not by scarification) of the parasite of tertian ague into the patient. After 8 to 12 pronounced malarial attacks, treatment by quinine and neo-salvarsan is instituted. I would refer you to the article which I cite for an account of the successful results (in respect of production of remissions) achieved; also one by Wagner-Jauregg in the *Journal of Nervous and Mental Disease* of May, 1922, and one by Pilcz in THE LANCET of Jan. 6th, 1923, p. 19. This therapeutic measure is also favourably reported upon by Gans. This treatment of dementia paralytica, with a view to production of remission, by the inoculation of patients with blood taken from patients shortly before a malarial attack, or blood of mice which had been inoculated from a case of relapsing fever—the mental cases being inoculated either subcutaneously or intravenously—is also being carried out at the Hamburg Psychiatric Clinic and the results up to date (1922) are fully reported upon by Kirschbaum. I would suggest that a reaction with production of anti-substances to the spirochæte of relapsing fever, or even to the *Plasmodium malariæ* (a protozoon), might theoretically be expected to be more efficacious in dementia paralytica than any reaction as a result of inoculation of bacilli, since the above organisms are biologically more closely related to the spirochæte of syphilis. Stimulation of the defences by inoculation with the virus of syphilis would seem to be a more rational procedure than the above. According to Scharnke (Marburg) cautious experiments in this direction have long been in progress, though I have not come across any accounts of the results.

The beneficial results of intercurrent maladies, and of the therapeutic measures referred to above, upon the insanities may be examples of non-specific protein therapy. We are far from understanding the rationale of this treatment, and it is unprofitable to discuss the theories advanced on the subject.

It would appear worth while to pursue the inquiry as to the effect of non-specific parenteral protein therapy in mental disorders suggestive of a toxic origin. Any experience available is worth brief record, even though negative; in the latter case, time will be saved to intending workers. I have used a 1 per cent. solution of Armour's peptone, in doses up to 1 c.cm., intravenously. This was sterilised by filtration through a porcelain candle. With it I obtained no physical or psychical evidence of reaction. I would make the suggestion that Witte's peptone, either added to the above or alone, might be tried. The risk of anaphylaxis cannot be dismissed with intravenous injections, and it is doubtful whether they are superior to intramuscular ones.

Production and Specificity of Antibodies.

Production of antibodies by inoculation of animals with the sera, red blood corpuscles, or stroma of same, of cases of mental disorder: specificity or otherwise of such. In 1913 I inquired into the point as to whether the blood-serum of the insane produces specific precipitin when inoculated intravenously into rabbits. The results were estimated by naked-eye observations. From these it was gathered that a given anti-serum produced the same amount of precipitate, whether put up against the actual serum by which it was produced, the serum of patients suffering from the same mental disorder, or the serum of patients suffering from other kinds of insanity. There was no specificity of reaction. There is room for further work in this direction, an agglutinoscope, or even a low power of the microscope, being employed in reading the results. In 1921–1922 further work on the same subject was done by Dr. Scholberg, Dr. Cameron (of Cardiff), and myself. Red blood corpuscles, or the stroma of such, were used as antigens, in addition to serum. The same lack of specificity was noted. Interesting is our failure to produce antibodies (as tested against c.s.f. of G.P. and non-G.P.) by the injection into rabbits of large amounts of cerebro-spinal fluid from G.P.'s, and choroid-plexus emulsion, from cases of dementia paralytica, and control-plexuses from other kinds of disease. In conjunction with Scholberg and Cameron I have entered into the question of production of specific anti-substances by the injection into animals of the serum, whole red blood corpuscles, or stroma of such, from cases *recently received* of acute mental disorder. The argument was that if these acute and recent states had been produced by an unknown toxin, such would have produced antibodies in the patient's blood, which, in turn, might be

expected to evoke anti-substances when injected into animals. It was found, however, that such anti-substances as were produced were not specific, but reacted as much with a control's blood as with that of the patient from whom the injections were made. The antibodies looked for were precipitin, hæmolysin, and hæmagglutinin; there is room for further research as to complement fixation.

An inquiry was made by us as to whether the psychoses, or any of them, could be classified in the four blood-groups of Moss, who placed human beings in four groups, according to the ability of their serum to cause agglutination, and of their corpuscles to be agglutinated. According to Moss, agglutinins appear with approximately the same relative frequency in health and various diseases, and have no diagnostic significance. Therefore, it was not surprising that we found, having examined 262 cases, that instances of various kinds of mental disorder occurred in each and any of the groups, and that, therefore, the psychoses are not classifiable in these groups.

It still remained of interest to inquire—irrespective of the question of insanity—whether the precipitin, hæmolysin, or hæmagglutinin, produced in the serum of rabbits or fowls by inoculation of serum, or blood corpuscles, or their stroma from cases in a given group, gave a greater reaction with antigens (serum or r.b.c.) of that group than with those of another group. In respect of the two groups (1 and 4) dealt with, a large number of tests showed that there was *no group-specificity*. Fowls were injected intravenously and intraperitoneally, in the first case with repeated doses, in the latter with one large dose (20 c.cm.), only serum being injected. Rabbits were injected intravenously with repeated doses of all the antigens in question. An interesting point, meriting further investigation, emerged in the course of this experimental work; it was found that the anti-serum against stroma of red blood corpuscles produced, with the red blood corpuscles tested, agglutination much more frequently, or more strongly, than anti-serum obtained by injection of whole red blood corpuscles.

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BRONCHOMONILIASIS.

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ONLY within recent years has there been any general recognition of the frequency with which mycotic infections of the respiratory tract occur. In 1910 Castellani[1] drew attention to the part played by fungi of the genus Monilia, and published an account of 22 cases occurring in Ceylon. Since that time numerous other instances have been recorded, notably in Egypt,[2] Italy, and South America.[3] Cases have also been found in Siam,[4] China,[5] South Africa,[6] France, and elsewhere. In general it may be said that the maximum incidence occurs in climates which are both hot and moist. Fungi of the Monilia group are members of the family Oösporaceæ, to which class belong those of the closely allied genus Oidium. Outside the body they are widely distributed, and may be found more especially on fruit and on dead leaves and wood. In the sputum they appear as round or oval Gram-positive, yeast-like bodies, sometimes showing a double contour (Fig. 1). Fragments of mycelium may also be found, often in bacillary or coccoid forms. Not infrequently tiny white particles, representing masses of growth, may be visible to the naked eye.

Although cultures may be obtained on ordinary media, a more copious growth occurs in those which are slightly acid in reaction and contain a percentage of some sugar—e.g., glucose or maltose. Growth occurs readily at room temperature, but in some cases is more rapid at 37° C. On solid media (Fig. 3) the cultures are usually of a creamy-white colour; later, a brownish pigmentation often appears. They are composed of the yeast-like bodies only. In liquid media, bacillary and filamentous forms may be found (Fig. 2). Numerous species have now been isolated. For their identification, use has been made of their powers to ferment various "sugars" with the production of gas. Castellani has demonstrated that these powers are remarkably constant in freshly isolated strains, and on this basis has evolved a comprehensive classification.[7]

Infection in Man.

In man direct infection from case to case may possibly occur. More commonly, however, bronchomoniliasis results from the inhalation of contaminated particles. The relatively high incidence among tea-tasters in Ceylon confirms this view, and gives some indication of the importance of the occupational factor. The further possibility that pulmonary infection may occur by spread from a cutaneous source is suggested by the researches of Wade,[8] who succeeded in producing chronic lesions with cavitation in the lungs of a monkey after subcutaneous injection of a broth culture of *Blastomyces dermatitidis*. It is noteworthy that in cases of primary infection of the respiratory tract the mouth and pharynx usually escape. Secondary infection from this source may, however, occur in debilitated persons. Instances of mixed infection are not uncommon, notably with the tubercle bacillus or, in tropical countries, with *Spirochæta bronchialis* or *Paragonimus westermanni*.

(*Continued from preceding column.*)

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Clinical Features.

Clinically, all grades of severity are to be met with. In the milder cases the general health is not seriously impaired, and there is very little fever. Physical examination reveals signs of bronchitis, or perhaps of broncho-pneumonia. In the more severe instances wasting is marked, and may be accompanied by all the signs and symptoms usually associated with pulmonary tuberculosis. Intermediate types are not uncommon and may run a prolonged course with one or more relapses.

Post-Mortem Findings.

As the majority of cases recover, post-mortem records are scanty. It would appear, however, that the initial lesion is a bronchitis, from which extension may occur with the production of an acute or chronic broncho-pneumonic consolidation. In some instances circumscribed tubercles may be found. Mendelson,[4] describing a chronic case in which death occurred from intercurrent disease, states that the lungs were firm and contained numerous white nodules resembling those found in tuberculosis—except for the fact that they showed no sign of breaking down. Boggs and Pincoffs[9] record a further case, complicated by the presence of carcinoma mammæ in which abscesses above and below the left clavicle communicated through numerous small openings in the thoracic wall with a localised empyema beneath it. The left lung was densely adherent to the chest wall. Its upper lobe was solid, firm, and grey. In the lower lobe were scattered areas of consolidation, especially at the apex. The bronchi showed evidence of inflammation, and the hilus glands were enlarged and contained translucent areas. A third case, complicated by pulmonary tuberculosis, is reported by Macfie and Ingram.[10] A pyo-pneumothorax was present on the left side, and contained thick creamy pus. Numerous tubercles were present in both lungs, many of them caseating. Tubercle bacilli were demonstrated in the lungs; in the pleura both tubercle bacilli and *Monilia tropicalis* were present. These two organisms had been found in the sputum in large numbers during life.

Animal Experiments.

Various attempts have been made to induce direct infection of the respiratory passages of animals. In 1912 Castellani[11] succeeded in producing broncho-pneumonia in a guinea-pig as the result of repeated insufflations of tea-dust. In 1915 Boggs and Pincoffs[9] obtained lesions in the lungs and other viscera of rabbits as the result of injections of pure cultures of Monilia into the trachea. Insufflation experiments carried out on monkeys by Chalmers and MacDonald failed to give clinical results.[2a] The subcutaneous route has also been utilised. Using pus and sputum, Farah[2b] obtained negative results, and with broth cultures only succeeded in producing a local induration in rabbits. Intraperitoneal injection, however, resulted in a brisk general reaction followed by recovery; intravenous administration invariably produced disseminated lesions, notably in the lungs and kidneys, and resulted in death within a few days. This last observation has been confirmed by many observers.

With regard to these experiments, which are reported to have given negative results, it is of interest to note that Mendelson[12] succeeded in finding areas of consolidation and small non-caseating nodules, together with enlargement of the bronchial glands in guinea pigs, which failed to show any clinical disturbance, even after the lapse of several weeks after inoculation.

It seems to be fully established that lesions produced by various species of Monilia are indistinguishable from each other. Using cultures of *Monilia pinoyi* isolated from Case 2, we have obtained the following results in rabbits:—

1. As the result of intravenous injection of 5 c.cm. of a moderately turbid emulsion, one rabbit died after three days; a second, obviously ill and rapidly losing weight, was killed on the eighth day. In both, numerous miliary lesions resembling tubercles were found in the organs, especially in the lungs, liver, spleen, and kidney (Fig. 4). Cultures made from these yielded a pure growth of *Monilia pinoyi*. Sections showed the presence in them of both oval and filamentous forms of Monilia in large numbers. In all the organs the perivascular distribution of the lesions was very noticeable. In the lung there was also evidence of peribronchial infiltration.

2. Intratracheal injection of similar emulsions produced no gross clinical symptoms apart from a slight cough. This rabbit was killed after eight months. The only macroscopic lesions found were small scattered patches of consolidation in the lungs. In sections, apart from the consolidation, marked peribronchial infiltration could be seen (Fig. 5), and small tubercles composed chiefly of endothelial and plasma cells and having hyaline non-caseating centres.

In the consolidated areas the arteries showed very obvious thickening.

Cases.

The following cases may be of interest in that their nature was discovered in the course of routine investigation of patients in this country. The first occurred in the private practice of one of us (Th. J.), the others among patients admitted to St. Bartholomew's Hospital.

CASE 1.—A married woman came under the observation of one of us (Th. J.) in April, 1920, suffering from an illness which presented all the clinical features of pulmonary tuberculosis. For two years she had been troubled by cough and the expectoration of muco-purulent material, at times blood-stained. Fever was present, accompanied by sleep sweats and progressive emaciation, and weakness which had for some time confined her to bed. Well-marked signs of consolidation were present at the apices of the lungs. A curious feature of the case was the fact that, although the sputum had been examined on no fewer than 17 occasions tubercle bacilli had never been found. A fresh specimen was obtained, and in it were seen numbers of tiny white masses, which proved to consist of yeast-like bodies of which large numbers were visible in films. No tubercle bacilli were seen. Cultures from this and from subsequent specimens on Sabouraud's medium yielded a profuse growth of Monilia (untyped).

As a result of these findings increasing doses of potassium iodide were given. The effect was most marked. The general condition improved rapidly, and within two months the patient was able to get up and to walk about. She was seen again at the end of a year, and appeared to be in perfect health.

This case illustrates how chronic may be the course of the infection, and how readily the condition may be confounded with that of pulmonary tuberculosis.

CASE 2.—A man of 32 was admitted under the care of Dr. H. H. Tooth in December, 1920. He had for the past two years been engaged in unpacking syphons sent from Austria, in dirty and dusty straw. Both he himself and his fellow workers frequently suffered from pustules on the exposed parts of the arms and face. About ten days before admission he developed a slight cough with scanty expectoration. This gradually increased in severity and became associated with fever and malaise. Herpes labialis was present on the left side. The fauces were red and injected, and there were signs of consolidation at the base of the right lung—signs which did not wholly disappear until a month later. The spleen was just palpable. The temperature began to fall on the eleventh day after the onset of acute symptoms, and reached normal by lysis. Thenceforward convalescence was rapid, interrupted only by an acute follicular tonsillitis in the fourth week.

The sputum, at first scanty, later became more copious; it was muco-purulent and free from blood. Numerous small white specks were visible in it. In films were seen numbers of oval Gram-positive bodies, and numerous bacillary and filamentous forms. Cultures on Sabouraud's medium yielded a copious growth of *Monilia pinoyi*.

When last seen, some six weeks after admission, the patient was in good health and free from cough. Monilia was still present in the sputum, though in smaller amount than previously.

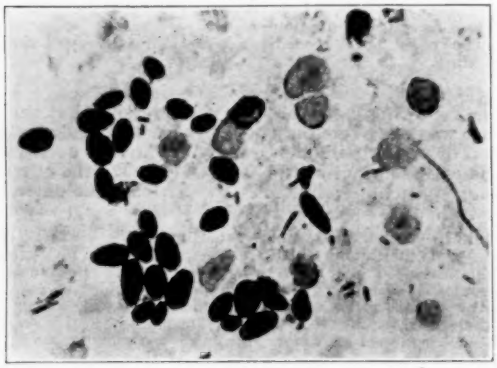
CASE 3.—A girl of 16, a cigarette packer, came under Dr. Tooth's observation in March, 1921, with signs of broncho-pneumonia at the base of the left lung, which persisted for three weeks. The onset was sudden, accompanied by cough and by a considerable rise in temperature, which fell to normal by lysis on the sixth day. As in the previous case, convalescence was interrupted by an acute tonsillitis with

exudation occurring in the fifth week. The sputum was copious and frothy at first; later it became more scanty and tenacious. In films were numerous Gram-positive diplococci and filaments. Culture yielded a growth of pneumococci (type 2) and of *Monilia pinoyi*.

The patient was last seen ten weeks after the onset of her illness. She was in good health, the amount of sputum was very small, but still contained Monilia.

CASE 4.—A woman of 47, a needleworker, was admitted to hospital under the care of Dr. Tooth in April, 1921, complaining of malaise and obscure pain in the right side of the chest. An area of consolidation was present at the base of the right lung, over which coarse pleural friction was audible. A few days later a further area of consolidation appeared at the base of the left lung. Recovery was gradual and uninterrupted. The temperature remained raised for 14 days, and fell to normal by lysis. The signs of consolidation, however, did not wholly disappear for some weeks.

FIG. 1.

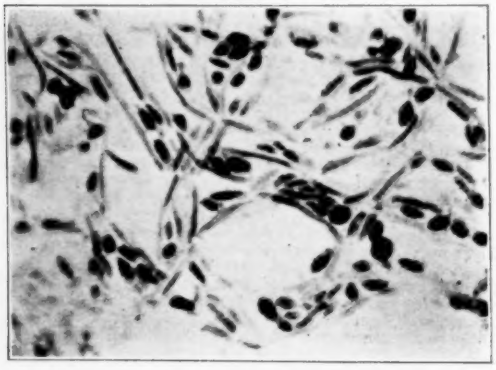


Fungi of Monilia group in sputum, appearing as round or oval yeast-like bodies.

The sputum in this case was never copious. Repeated cultures on Sabouraud's medium yielded a plentiful growth of *Monilia guillermondi*.

CASE 5.—A girl of 15, a blouse machinist, was admitted to hospital in May, 1921, under the care of Dr. Tooth, suffering from cardiac failure, following a recent attack of rheumatic fever. She was febrile, and coughed up a moderately large amount of muco-purulent sputum, from which a profuse growth of *Monilia pinoyi* was obtained on several occasions. Signs of consolidation were present at the base of the left lung. After a few days generalised râles and friction at the base of the right lung appeared. Later 28 c.cm. of clear, sterile, straw-coloured fluid were removed by aspiration from the left pleural cavity. The patient's cardiac condition failed to improve. She died two months after admission. Autopsy revealed the presence of severe lesions in the heart. There was a small amount of fluid in both pleural cavities. The lungs were very œdematous but otherwise normal.

FIG. 2.



Bacillary and filamentous forms found in liquid media.

Unfortunately, no detailed examination was made for evidence of Monilia infection.

The following case is an instance of mixed infection with Monilia and the tubercle bacillus, and is of interest because, as the diagnosis of phthisis appeared clear, the sputum was included in the number of that examined as controls.

CASE 6.—A housewife, aged 24, was admitted in December, 1921, under the care of Sir Thomas Horder. She had been in poor health for four months, during the last of which she had been confined to bed, and had lost weight rapidly. Cough was troublesome, with expectoration of much muco-purulent material. On several occasions examination showed the presence of large numbers of tubercle bacilli, of pneumococci, and also of *Monilia pinoyi*, both in yeast-like and filamentous forms. The patient remained under observation for two months, during which time her condition steadily deteriorated.

Although it would appear that the various species of Monilia are widely distributed, records of published cases give some indication of the local predominance of certain of them—e.g. *M. pinoyi* in Egypt and *M. tropicalis* in Ceylon. It is interesting, therefore, to note that from four out of five of the cases above recorded *M. pinoyi* was isolated. In only two of the cases (2 and 3) does the influence of a dusty occupation as to cause of infection seem to be at all possible. In Case 2 the history of the occurrence of pustules on the arms and faces of workers seems suggestive. Attempts to isolate Monilia from a sample of the suspected straw (Case 2) and from the dust of various brands of cigarettes (Case 3) failed.

FIG. 3.

Creamy-white culture on solid media in test-tube.

The clinical picture in no way presents any distinctive feature. The long duration of the signs of pulmonary consolidation is notable, as is the persistence of the fungus in the sputum after the completion of convalescence—a feature indicative of the chronicity of the infection, and perhaps of the possibility of relapse. In the two cases which presented an acute tonsillitis cultures made from the exudate yielded a plentiful growth of *Monilia pinoyi*. It is difficult, however, to exclude the possibility of contamination from the sputum.

Diagnosis.

The diagnosis of bronchomoniliasis is by no means free from difficulty. It depends primarily on the repeated demonstration of the fungus in the sputum. It is essential that specimens should be collected into sterile vessels and washed repeatedly before cultivation. The patient should gargle with sterile saline or with a dilute solution of potassium permanganate before expectorating. In cases of true infection a profuse growth occurs from cultures on Sabouraud's medium. In other cases experience has shown that, even when the preliminary washing of the patient's mouth is neglected, it is exceptional to obtain more than a very scanty growth, and that commonly none at all appears. This fact has been established by the examination and cultivation of a large number of sputa selected at random without reference to the clinical diagnosis. Confirmatory evidence may be sought in other directions.

(*a*) Fixation abscess: In Case 2 the hypodermic administration of digitalin resulted on three occasions in the production of small abscesses containing *Monilia pinoyi* in pure culture. This fact was interpreted as an indication that a true and generalised infection existed. As a further step, small fixation abscesses were produced in Cases 3, 4, and 6 by means of the hypodermic injection of a few minims of oil of turpentine. In Cases 3 and 6 the pus was sterile. In Case 4,

However, Monilia was demonstrated in film and grown in pure culture. It would appear, therefore, that this procedure is of some diagnostic value.

(*b*) There is no record in published cases of resort to blood culture. In view of the possibility of generalisation of the infection, positive results might be expected in some instances. Cultures in sugar-broth media taken from Cases 2 and 3 of the above series proved sterile.

(*c*) Agglutination and complement-fixation tests are sometimes of value. No evidence of the presence of specific agglutination could be found in the sera of Cases 3 and 4, although after the administration of an autogenous vaccine agglutination occurred in Case 2 in serum dilutions from 1 in 5 to 1 in 50.

(*d*) In Cases 5 (*M. pinoyi*) and 4 (*M. guillermondi*) an attempt was made to establish the diagnosis by means of cutaneous inoculation of protein isolated from a culture of *Monilia pinoyi*. In neither instance did any reaction occur.

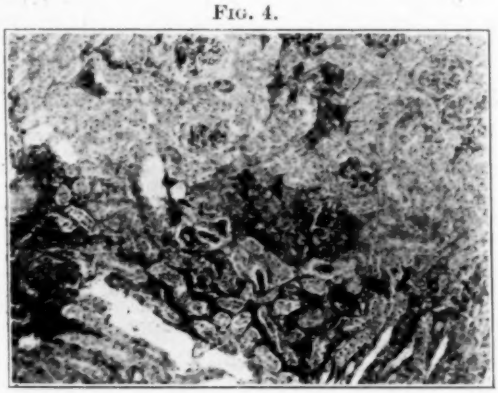
In those cases where the lesion is purely local those methods of investigation which aim at the detection of the organism in the circulation, or which depend on the recognition of specific general reactions, are hardly applicable. There is, however, evidence to suggest that dissemination does occur and that the use of these methods for diagnostic purposes is worthy of trial.

Treatment.

Authorities are unanimous in their opinion that the administration of iodine is beneficial. For oral administration potassium iodide in large doses is sometimes effective, although tinct. iodi. (French Codex) is perhaps a more active preparation. Castellani recommends saiodin (10–20 gr. t.d.s.) in cachet. For intramuscular injection lipiodol in doses of 1–2 c.cm. (0·54–1·08 g. iodine) daily is of use.

In the cases recorded above potassium iodide was administered in doses of from gr. xxx.–lx. per diem. The persistence of Monilia in the sputum after convalescence is due in part to the fact that the patients neglected treatment, and in part no doubt to the relative smallness of the doses ordered. Cases 2 and 4 were given autogenous vaccines in doses of from 10–2000 millions. No reaction of any kind was observed.

FIG. 4.



Miliary lesions resembling tubercles found in kidney of rabbit after intravenous injection of 5 c.cm. of a moderately turbid emulsion of *Monilia pinoyi* culture isolated from Case 2.

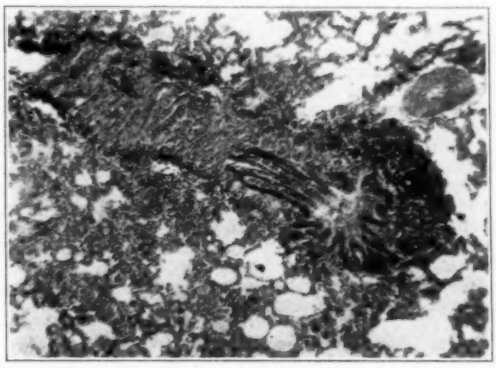
Prognosis.

Mild cases tend to recover spontaneously. There seems to be no doubt, however, that efficient treatment is capable of considerably modifying the course of both the mild and the more severe infections, and of producing a rapid improvement in many cases. To avoid, as far as possible, the danger of relapse, the patient should be kept under the influence of iodine for some time after convalescence is complete.

Conclusion.

In conclusion, it is suggested that bronchomoniliasis is of more frequent occurrence in this country than has hitherto been suspected, and that, as the clinical features are in no way distinctive, the investigation of sputa for the presence of fungi will well repay the trouble entailed.

FIG. 5.



Section of rabbit's lung showing marked peribronchial infiltration and small tubercles, composed chiefly of endothelial and plasma cells and having hyaline non-caseating centres.

We wish to thank Dr. H. H. Tooth and Sir Thomas Horder for permission to investigate and to publish these cases and, more especially, for the kindly interest which they have taken in our work.

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MENTAL TESTS FOR DELINQUENTS,

AND MENTAL CONFLICT AS A CAUSE OF DELINQUENCY.

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THE first part of this paper deals with the results obtained with the Hamblin Smith scheme of tests[1] on prisoners in Birmingham Prison. Of 750 cases tested during a period of three years, only those have been considered for the purposes of this paper in which a complete examination with these tests was given. This condition has excluded, amongst others, a considerable number of imbeciles. Of these completely examined cases there were 217 men and 108 women. It must be taken into consideration that there were a number of cases remitted for special investigation under the Birmingham scheme,[2] and many of these were prima facie abnormal. No conclusions, therefore, must be drawn from our figures as to the percentage of mental defectives and subnormals amongst our criminals.

Examination of 325 Cases.

The results arrived at after the examination of these 325 persons suggest conclusions which further investigation on a more extensive scale is needed to corroborate. We are, therefore, presenting suggestions and indications rather than statistics. The cases have been grouped under the headings of normal (N), subnormal (S), and mental defective (M.D.). (Table I.)

TABLE I.

	N.	S.	M.D.
Males	106	46	65
Females	45	22	41

Note.—This table must be kept in view throughout. All percentages throughout the paper are calculated on the basis of the figures here given.

The *normal* group needs no special description. The *subnormal* group consists of: (1) Persons considered to be defective in intelligence, in whom the defect is not great enough to warrant placing them in the mentally defective class, or where there was difficulty in establishing the existence of the defect from an early age. (2) Persons in whom the defect in intelligence is complicated by and in some cases brought about by mental conflict. The *mental defective* group are those who are certifiable under the 1913 Mental Deficiency Act—i.e., they present all the criteria of permanent mental defect from an early age, with need for care, supervision, and control for their own protection or the protection of others. Of the total 325 cases all except 28 were under the age of 30 years. The remainder were either subnormal or mentally defective. We have found that mentally normal persons over the age of 30 do not respond well, as a rule, to formal testing. The remaining 297 cases were quite unselected.

The total 325 cases have been classified as under:—

1. Under the headings normal, subnormal, and mental defective: (*a*) Results obtained in each of ten tests, summarised in Table II., are briefly explained and discussed. (*b*) The character of offences committed.

2. The normal and subnormal cases in connexion with mental conflict have been dealt with.

3. A general summing up of the results obtained is given.

Details of Tests.

TEST 1. *Money Change.*—In this test the subject is asked simple questions such as: If your fare on a tram were 2½*d.* and you gave the conductor a 2*s.* piece, what change should you get? If you buy 1 lb. of bacon at 1*s.* 5*d.* the pound, what change should you have out of half-a-crown? "A kind of problem that must be solved if a subject is to live at all in the ordinary world." The gradation is definitely downwards; but it is to be noted that rather more than half the mentally defective are able to pass this test. The normal female shows a slightly better result than the normal male. This is probably due to the fact that women do the marketing and are, therefore, more constantly having to use this form of mental activity than the male.

TABLE II.—*Summary of Results Obtained in Ten Tests.*

—	Sex.	N.	S.	M.D.
Test 1. Percentage of success ..	M.	97·8	83·7	54·9
	F.	100	80·9	69·2
,, 2. Percentage of success ..	M.	96·2	82·6	56·9
	F.	88·8	77·2	43·9
,, 3. Percentage of success ..	M.	92·5	69·9	38·4
	F.	88·8	45·4	21·9
,, 2 and 3 together. Percentage of success	M.	89·6	58·7	23·0
	F.	82·2	31·8	14·6
,, 4. Percentage found suggestible	M.	44·6	60·9	62·3
	F.	33·3	50·0	52·8
,, 5. Percentage of success ..	M.	90·4	57·7	20·0
	F.	95·5	68·1	20·5
,, 6. Percentage found suggestible	M.	41·7	32·9	65·1
	F.	15·6	31·9	35·0
,, 7. Percentage of superior plan	M.	68·0	39·1	17·5
	F.	53·4	30·0	5·4
,, 8. Percentage of success ..	M.	86·6	64·9	61·2
	F.	89·2	62·1	48·5
,, 9. Percentage of success ..	M.	71·7	30·2	15·6
	F.	51·1	19·0	5·4
,, 10. Percentage of very good, good, or fair	M.	93·0	81·4	20·9
	F.	81·2	66·6	31·0

TEST 2. *First Form Board* (*Healy*).—The board is a rectangular frame into which exactly fit five blocks. It is a test of attention, perseverance, perception of form relationship and the ability to plan a simple piece of work. Again, the gradation is downwards. The males show a better result than the females. Since men are frequently engaged in work such as carpentry, brick-laying, plumbing, van-loading, road-making, &c., all of which require some skill in planning and fitting, it may be concluded that the difference is again, probably, due to occupation. The same variation is evident also in the second form board and in both boards taken together.

TEST 3. *Second Form Board* (*Hamblin Smith*).—This is similar to the first form board test but more difficult, requiring a higher degree of intelligence to accomplish it. As we should expect, the gradation is very much more marked. Where 56·9 per cent. of mental defectives among the males were able to do the first form board, only 38·4 per cent. were able to do the second form board. Among the females the percentage for the first form board is 43·9 as against 21·9 for the second. Taking Tests 2 and 3 together we see that the percentage in the mental defective group is very much lower. The two tests, especially when taken together, form decidedly good discriminating tests for mental defect.

TEST 4. *Aussage.*—A test of attention, observation, memory, and suggestibility. The subject is given a brightly coloured picture, being told to observe carefully all that he sees therein. After 20 seconds the picture is taken away, and he is told to give a full description of everything that he has noticed. After having exhausted these memories the examiner suggests certain objects as having been in the picture, and notice is taken as to whether the subject accepts these suggestions or not. The table shows the percentages of those found to be suggestible. It will be noted that suggestibility rises with the decline of intelligence, also that the males show a slightly greater degree of suggestibility than do the females.

TEST 5. *Interpretation of Pictures* (*Terman*).—This is a test of apperception, recognition of a situation presented visually, and imagination. Two pictures are given in turn to the subject, and he is asked to give an interpretation of their meaning. The descent is very marked, and the test is correspondingly valuable. The females make a slightly better show than the males, perhaps indicating a slightly greater power of imagination.

TEST 6. *Comparison of Lines* (*Binet*).—A test of suggestibility. Three pairs of unequal lines, the longer being, in each case, on the right-hand side, followed by three pairs of equal lines, are presented to the subject in succession. The suggestible subject is liable, because of the repetition in the first three pairs of the longer line being on the right-hand side, to see a longer line on the right-hand side in the case of the equal pairs also. There is a marked increase of suggestibility in the mentally defective class. As in Test 4, the males show a greater degree of suggestibility than the females. This difference may be due to the more secluded

[1] The Psychology of the Criminal, Hamblin Smith, Chapter 2.
[2] The Medical Examination of Delinquents, Journal of Mental Science, July, 1922.

life of the female of the type with whom we are dealing and to her more guarded contact with the outer world; the male, who is more accustomed to meet other people, is less suspicious.

TEST 7. *Cricket Ball (Terman).*—A circle of about 3 inches in diameter, with a gap to represent a gate, is presented to the subject. He is asked to suppose he has lost a ball or a purse in this field, and to draw a line from the gate indicating the path he would take in order to find the lost object. The test is one of ability to grasp essentials, to comprehend simple directions, and to make a plan. The result may be a superior plan, an inferior plan, or no plan at all. Table II. shows the percentage able to produce a superior plan. The descent is very marked and the test very valuable. Males are better than females, probably for the same reasons as in Tests 1 and 2.

TEST 8. *Apperception Test (Heilbronner).*—This consists of eight sets of cards, each successive card in the set showing rather more detail in the representation of some common object (lamp, bicycle, &c.), until the complete object is shown in the final card. The cards in each set are presented in their order, and a note is made of the point at which the subject names correctly the object shown. A success is scored when the subject recognises the object in at least five of the eight sets before more than half the cards in each set have been shown. Apperception is naturally less strong in the subnormals and the mentally defective. The difference between the sexes is not appreciable.

TEST 9. *Pictorial Completion Test (Healy).*—A test demanding mental control, association, imagination, and apperception. It consists of a brightly coloured picture, mounted on wood, and in which 10 1-inch squares have been cut out. The subject is given the picture and 45 blocks, each 1 inch square, of which 40 bear a representation of some object, while the other five are blanks. He is required to fill in the picture with the blocks which, in his opinion, make the best sense. Care is taken to see that he thoroughly understands what he has to do by means of the demonstration of the correct filling of one space by the examiner. The subject is then left to complete the picture by himself. A note is made of final errors, logical and illogical, the latter being errors for which the subject can give no reasonable explanation. The gradation is very marked, and this pictorial completion forms a most excellent discriminating test. The opinion expressed in "Psychology of the Criminal," p. 42, that an absolutely complete success in this test excludes mental defect, still holds good. In our present figures, however, we have scored more leniently, allowing a wrong window, a wrong bird, and a pumpkin instead of a ball to count as logical and a pass.

TEST 10. *Information.*—A test of general current knowledge, involving simple questions such as the name of the King and the Prince of Wales, the names of four or five large cities in England, the cause of the Great War and the date of its commencement, the names of our allies and those of Germany, and so on. This table includes cases whose information was scored as "very good," "good," or "fair." The results are as expected. There is a great falling off in the mentally defective class. Here, again, the males are better than the females, a result we should expect, since men, by reason of their manifold occupations, are brought in contact with the outer world, whereas the women of the class from which we draw our offenders are often occupied at home.

Summing up the results obtained on the ten tests, Table III. shows the averages of failures in each case. These averages rise rapidly in the subnormal and mentally defective groups.

TABLE III.—*Showing Averages of Failures in each of the Tests.*

—		N.	S.	M.D.
Males	No. of cases	106	46	65
	No. of failures	198	197	552
	Average per person	1·88	4·37	8·76
Females	No. of cases	45	22	41
	No. of failures	101	121	333
	Average per person	2·24	5·5	8·1

Table III. also shows the averages in the normal and the subnormal classes on the male side to be better than on the female side. This is what we should expect, since Tests 2, 3, 6, 7, 8, and 9 give in each case a better result for the male, an explanation of which has been suggested on occupational grounds. In Tests 1 and 5 the female is better than the male, probably from the same cause. In Tests 4 and 6 it should be noted that the males are more suggestible than the females.

We venture to think that, for reasons set out in detail in the "Psychology of the Criminal," pp. 46-8, this scheme of tests possesses certain advantages over the well-known Terman scheme, as well as avoiding certain possible fallacies, especially for use with subjects between the ages of 16 and 30 years. The tests require little facility in the use of language, and are, therefore, very useful when we deal with the subnormal or defective "verbalist" type.[3]

Classification of Offences.

Classifying the cases under offences, we have divided them into four groups:—

(*a*) *Larceny.*—Offences of dishonesty of every kind, from trivial stealing to obtaining money on false pretences.

(*b*) *Sex.*—The character of offences in this class on the part of the males is largely that of indecent exposure and indecent assault, whereas in the female the offence in most cases is that of solicitation. That is to say, that while in the male the offence is purely sexual in character, in the female the offence is activated largely, and in some cases solely, by economic reasons.

(*c*) *Vagrancy.*—This includes all such offences as begging and wandering without visible means of support.

(*d*) *Miscellaneous.*—A comparatively small group, including drunkenness, violence, attempted suicide, &c.

Table IV. shows the percentages of cases arranged under each group.

TABLE IV.—*Showing the Percentage of Cases arranged under each Group.*

—		N.	S.	M.D.
Males	Larceny	68·9	50·0	41·5
	Sex	20·8	21·7	26·2
	Vagrancy	7·2	13·0	21·5
	Other offences	3·1	15·3	10·8
Females	Larceny	52·2	38·1	25·0
	Sex	13·5	28·8	25·0
	Vagrancy	10·5	4·1	27·5
	Other offences	23·8	28·0	22·5

The great preponderance of larceny and sex offences over all others is clearly seen. These two offences will always provide the vast majority of the cases to be investigated.

The Factor of Mental Conflict.

We now take the normal and subnormal groups, and give below in Table V. the percentage of cases in which the offence committed was due to mental conflict. No conclusions, however, as to the incidence of mental conflict as a cause of delinquency must be drawn from these figures, since many of these cases were sent for special observation. Further, some of the cases were not examined sufficiently deeply to ascertain whether mental conflict were present or not. The short period of detention of many of the subjects, as well as on our part the lack of the necessary time, have been obstacles to deeper and more extensive investigation. But we have often gone far enough to see that a mental conflict, deserving fuller investigation, is a prominent factor in many cases. And we feel that mental conflict is the most important single cause of delinquency amongst the normal and subnormal offenders.

TABLE V.—*Mental Conflict Cases.*

	N.	S.
Males	32·0	41·3
Females	33·3	13·6

The figures in Table V. represent altogether 70 mental conflict cases; and these, under the head of offences, are divided up as below: larceny, 50 per cent.; sex, 28·3 per cent.; other offences, 21·7 per cent. In dealing with these cases we have found without exception that the conflict has been of a sex nature, although the offence committed may be of an entirely different character—e.g., stealing, violence, drunkenness, &c. As an example, a woman was brought up

[3] Healy: "The Individual Delinquent," pp. 501, ff.

before the courts on the charge of wilful destruction of public property; analysis proved the meaning of the act to be an attempt at expression on the part of a repressed complex which had originated in a sex experience many years before. The act was, in fact, an attempt on the part of the patient at protection against her unconscious. It is, moreover, to be noticed that sexual offences in the male, such as indecent behaviour, are, in the female, where repression of sex impulses has been more generally practised, often substituted by other offences, such as violence, attempted suicide, drunkenness, &c.

In summing up, therefore, we venture to think that our findings indicate at least one thing—that is, the enormous importance of conflict as a cause of delinquency. We are well aware that there is much that is highly controversial in this subject, and that very diverse views are held as to the precise mechanism and character of conflict and repression, and the manner of its operation. Into this controversy it is not our intention to enter. Nor does it greatly matter, from a practical point of view, which particular theory is adopted. It is the effect of repression and conflict which concerns us. And upon this there is more unanimity of opinion. To take an example from a somewhat cognate subject. There are great divergences of view as to the mechanism of production of dementia præcox; but there is no difficulty in the recognition of well-marked cases of that condition. Nor is there divergence of opinion as to the way in which these cases are to be dealt with. So with repression and conflict. Until such time as the present controversies have composed themselves, it is open to us to adopt any of the varying views. But there can be no doubt as to the importance of the condition. Nor can there be uncertainty as to the desirability of proper psychological investigation and treatment of this condition, nor the failure of our present methods in this respect. And the recognition of the importance of this condition as a cause of delinquency in no way implies that the subjects thereof are to be simply allowed to do whatever they please. The welfare of society is of supreme importance. Our point is that these cases require treatment, in the interests of society as well as in their own, and that this treatment must be on special lines.

What is wanted is: (*a*) Recognition of these conflict cases by means of full investigation before trial; (*b*) appreciation by the courts of the value and the necessity of the treatment of these cases of conflict; (*c*) provision of means of treating these cases by (1) proper institutions, (2) perhaps some form of indeterminate sentence.

The willingness of the patient is essential for the treatment, for which reason we think that the probation system might well be combined, in certain of these cases, with remedial measures. The submission to such measures could be made a condition of probation. But this involves institutions at which, and practitioners by whom, this treatment can be carried out.

The publication of this paper, as expressing our personal views, is approved by the Prison Commissioners.

RENDLESHAM HALL, SUFFOLK.—The new sanatorium for the residential treatment of alcoholism and drug addiction, which was described in THE LANCET of May 5th last, is now in full working order, and a descriptive booklet has been issued which gives full particulars of the conditions under which the treatment, founded on voluntary lines with an eye to the physical comfort and general well-being of the patient, is carried out. How exactly suitable these conditions are is shown by the illustrations of sumptuous interiors and the charming prospects of beautiful old trees, delightful walks, and well-kept gardens. There is also every facility for indoor recreations. Rendlesham Hall stands in 270 acres of its own grounds and in the centre of some 5000 acres of preserved land, full of game, and is an ideal place for the purpose for which it is intended, having all the charm of a large country mansion with effective medical treatment on the spot. The London offices are at 29, Ridge road, Stroud Green, London, N.8, from where the pamphlet can be obtained from the Secretary of Norwood Sanatorium, Limited.

THE INTER-RELATIONSHIP OF BLOOD-FAT AND BLOOD-SUGAR.

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THE presence of lipæmia and acetonuria in nearly all conditions in which there is a disturbance of carbohydrate metabolism has suggested to many observers the intimate relationship of the fat and sugar in the body. Whether ketosis can be explained entirely by a deficiency of oxidising carbohydrate, or whether it is due also to a disturbance of a physical or chemical combination of the two substances, is a problem which has yet to be solved. Some years ago Newburgh and Marsh[1] demonstrated the ease with which ketosis may clear up in certain cases of diabetes, in spite of a high fat dietary, and we have observed in several cases of severe diabetes an almost complete disappearance of acetonuria where the sole dietary has consisted of 3 oz. of cod-liver oil daily. In one instance the daily acetone excretion fell from 3 to 0·2 g. within six days and was accompanied by a rise in the alveolar CO_2 and a general amelioration of the patient's condition. These phenomena are difficult of explanation if carbohydrate be looked upon as a necessary fuel for the combustion of fat. On the other hand, excess of fat in the diabetic dietary is a frequent source of glycosuria, as has been pointed out by Allen, and it was noticeable in our own cases, above mentioned, that the glycosuria took much longer to clear up than with starvation alone, in spite of the rapid fall of acetone excretion.

There is some experimental evidence of an inter-relationship between the two substances. Biedl many years ago produced glycosuria by ligature of the thoracic duct, and though the experiment has been confirmed by others the result has been variously attributed to nervous irritation, an interference with a pancreatic secretion travelling via the duct, or to a disturbance of fat metabolism. The occasional coincidence of chyluria and glycosuria in man suggests, however, that the last explanation is the more probable. In one such case under the care of Dr. G. R. Murray, which we had the opportunity of observing, these symptoms appeared to be associated with a disturbance of liver function, as they were accompanied by temporary enlargement of that organ and by jaundice. Again, in phosphorus poisoning, where there is much disturbance of fat metabolism, the liver appears to be unable to store injected dextrose as glycogen. De Fillipi showed that sugar is less well tolerated by a starving than by a well-fed dog, and lactose is better tolerated when given in milk than when taken alone. Cramer found also that the administration of lard along with sugar raises the limit of tolerance.[2]

Of the physiology of fat after reaching the blood stream little is known. Apparently it enters into some combination from which it cannot be extracted by ordinary solvents, the so-called "masking" of fat; but a direct combination with glucose has never been proved, although a compound of mannitol and a fatty acid has been synthesised in the laboratory.

Method of Experiment.

The following experiments were made with a view to investigating this relationship. The problem is difficult and did not appear to be one which could be attacked by animal experiments, as both fright and anæsthetics may raise the blood-sugar considerably. As Allen has shown that glucose given intravenously behaves differently from that absorbed from the intestine, oral administration only was resorted to, the experiments being made chiefly on ourselves so that the diet

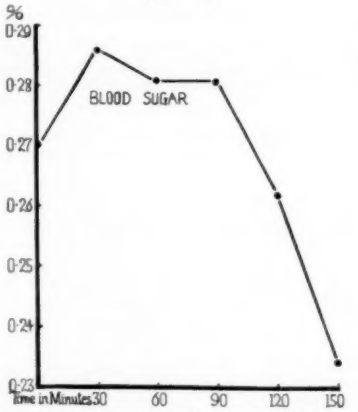
could be controlled as far as possible. The blood-sugar was estimated by Maclean's method and the blood-fat by Bloor's, both of which are sufficiently well known as to require no further mention here. It is noticeable that considerable variations were found in the amount of blood-fat in spite of prolonged fasting. Control experiments were made: in the estimation of blocd-sugar the error was found to be negligible; in the estimation of blood-fat it was not greater than 5 per cent.

In a normal subject after 50 g. of glucose the blood-sugar curve rises to 0·17–0·2 and falls to normal or below in 60 to 90 minutes. As Maclean has pointed out, sugar is still being absorbed from the intestine at the end of that period, but apparently some mechanism has been brought into action which stores the sugar as soon as it has been assimilated, and, within limits, the rise of the blood-sugar curve appears to be independent of the nature or quantity of carbohydrate taken (except lævulose). We have noted that if an ounce of fat or alcohol be taken an hour before a dose of 50 g. of glucose, although there may be some delay in the beginning of the rise of the curve—presumably owing to a retarded passage through the stomach—yet once the rise has started it follows a normal curve, much as when glucose alone has been taken. It seems reasonable to deduce, therefore, that the blood-sugar curve should be regarded as an indication of the capacity for storage rather than as a measure of the rate of absorption from the intestine. Variation in the rate of absorption is, however, a source of error in all these experiments and is unavoidable, but as all were done on an empty stomach and were frequently repeated we believe it has been reduced to a minimum.

The Effect of Fat on Blood-Sugar.

If fat be taken there can usually be observed a marked fall in the blood-sugar. Fig. 1 shows the effect of 1 oz. of butter on a diabetic who had fasted for 12 hours previously. This fact has been observed by Cammidge and his co-workers [3] and has been confirmed by us on numerous occasions. There appear to be two possible explanations of this effect of fat on the blood-sugar: either there was increased use of sugar to oxidise the excess of fat in the blood, or some inhibitory mechanism has been brought into play, leading to an increased storage of carbohydrate.

FIG. 1.



Effect of 1 oz. of butter on the blood-sugar of a diabetic.

The Effect of Fat on Adrenalin Hyperglycæmia.

A hypodermic injection of 20 minims of adrenalin invariably produced a bigger rise of blood-sugar if fat had been taken previously, the subject and the diet on each occasion being identical. The longer the interval between the taking of the fat and the injection of adrenalin, the greater the rise. This was particularly noticeable after cod-liver oil, which is known to be absorbed more rapidly than any other form of fat. Table I. shows the results obtained.

These results appear to indicate an increased storage of carbohydrate after fat has been taken.

TABLE I.

			Maximum rise of blood-sugar.
(1)	No fat	.. ..	0·16
(2)	,, ,,	.. ..	0·159
(3)	75 c.cm. cod-liver oil	1 hour previously ..	0·164
(4)	75 ,, olive ,,	3 hours ,, ..	0·21
(5)	75 ,, ,, ,,	3 ,, ,, ..	0·198
(6)	75 ,, cod-liver ,,	3 ,, ,, ..	0·242

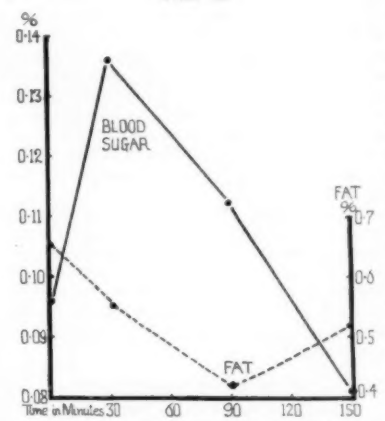
Three possible explanations suggested themselves to us to account for the increased storage: (*a*) The conversion of fat into carbohydrate; (*b*) the direct use of fat as a source of energy, thus sparing the carbohydrate stores; (*c*) some action of the fat on the storage of carbohydrate.

Of these the first seems improbable; even if so complicated a chemical reaction does occur, the time between the taking of the fat and the injection of adrenalin appears too short for the transformation to have taken place. In addition, the feeding of fat to a phloridzinised or depancreatised dog has been shown to produce no increase of glycosuria. With regard to the other explanations, both appear possible; the following experiments, however, seemed to show that the fat may take a more active part in the storage of carbohydrate.

The Effect of Sugar on Blood-Fat.

We have shown that fat diminished the sugar in the blood; we next investigated the effect of sugar on the blood-fat and found it produced a diminution of the latter. Sometimes the fat curve rose again after the sugar was absorbed (Fig. 2); occasionally it reached a higher point than when the experiment was commenced. Sometimes it produced a continuous fall of blood-fat. Table II. shows some of the results obtained after a dose of 50 g. of glucose. The experiments were done 7 to 18 hours after a meal, and as we found by control experiments that the blood-fat fell to normal after the sixth hour, there can be no question of absorption from the intestine. It was not a concentration effect, as the hæmoglobin remained constant throughout.

FIG. 2.



Effect of 50 g. of glucose on the blood-fat.

Excess of sugar, therefore, appears to have a considerable, if temporary, effect on the amount of extractable fat in the blood.

Effect of Calcium Salts.

By giving large doses of calcium salts (100 gr. of either the lactate or chloride) we were able temporarily to increase the acetone in the urine both in normal and diabetic subjects. Usually this was considerable, but occasionally it did not occur in certain of the more severe cases of diabetes. Allen and Wishart [4] were unable to find any increase of blood-fat on giving calcium salts to dogs. We found invariably, however, that calcium salts raised the blood-fat both in normal and diabetic persons. We were able to produce this after fasting for 18 hours; the effect, therefore, was not due to an increased absorption from the intestine. As the blood-sugar and hæmoglobin were not increased, this was not a concentration effect, nor did it appear to be due to an inhibition or oxidation of the fat by the blood-sugar, as if that were so one

TABLE II.

Subject.	Duration of fast before expt.	Commencement.	1 hr. later.	2 hrs. later.
	Hours.	Per cent.	Per cent.	Per cent.
T.H.O. ..	7	0·630	0·420	0·520
,, ..	8	0·589	0·470	0·459
A.H.	18	0·518	0·476	0·614
T.H.O. ..	8	0·320	0·260	0·310
A.H.	18	0·363	0·357	0·351
T.H.O. ..	18	0·416	0·375	0·233

would expect an accumulation of the latter. The increase of fat appears to be due either to a liberation of compound which had previously masked the fat, or to a mobilisation from the tissues. The association of a temporary lipæmia with an acetonuria after calcium salts seems to show that the latter is not due to an increase of the permeability of the kidney as we had at first supposed. Table III. gives some results.

TABLE III.

Subject.	Duration of fast before expt.	Commencement.	1 hr. later.	2½ hrs. later.
	Hours.	Per cent.	Per cent.	Per cent.
T.H.O. ..	8	0·390	0·420	0·595
,, ..	8	0·320	0·320	0·730
,, ..	8	0·480	0·390	0·515
,, ..	18	0·346	0·349	0·430
Diabetic ..	8	1·24	1·46	1·30
A.H.	8	0·516	0·590	—
T.H.O. ..	8	0·412	0·488	0·329

If 50 g. of glucose be given three hours after 100 gr. of calcium the blood-sugar curve was found to be higher than normal, usually rising to 0·2 per cent. or over, and failing to return to the previous figure in 1½ hours; sometimes it had not become normal in two hours' time. We also found that if the blood-fat had been raised by a dose of calcium it was not lowered by 50 g. of glucose as in Table II. This suggests that the blood-fat had been altered in some manner, so interfering with the mechanism of storage. In a mild diabetic who had been free from sugar for over a year 100 gr. of calcium so altered his metabolism that he was unable to take any carbohydrate without becoming glycosuric, although previously he had been able to take 2 oz. of white bread daily with impunity. This condition was transient and returned to normal in a fortnight's time.

Calcium has been shown by Clowes to be intimately concerned with the surface-tension of fat and can convert an emulsion of fat in water into one of water in fat. A possible explanation of the above experiment is some alteration of the surface-tension of the blood-fat diminishing permeability into the tissues in much the same way as it is known to affect the permeability of the kidney.

The Effect of Fat on the Blood-sugar Curve.

If fat be taken in considerable quantities (75 c.cm. of cod-liver oil or olive oil) 4 to 12 hours before 50 g. of glucose, so that when the latter is given the blood is flooded with fat, or if the sugar be suspended in fat, a marked prolongation of the sugar-curve results; the rise is usually greater than normal, often up to 0·24 per cent., and this usually has failed to return to normal in two hours, assuming at times almost diabetic proportions. Excess of free fat in the blood, therefore, appears to interfere with the absorption of glucose by the tissues. We have repeated this experiment many times, as our results appear to be the direct opposite of those of Labbé and Theodoresco, who found that fat diminished the rise of the blood-sugar curve.[5] If, however, a large quantity of fat be taken 18 to 24 hours before the dose of glucose, thus allowing it to be assimilated into the tissues, this effect is not seen; on the contrary, we have noted a more rapid fall of the blood-sugar under these circumstances.

Discussion of Results.

Although the results obtained cannot be looked on as conclusive, and are probably affected to some extent by variation in the rate of absorption, the above evidence seems to show that the blood-sugar has a relation to the blood-fat, other than that of a mere oxidising agent. Fat properly absorbed into the tissues appears to increase the storage of carbohydrate; if not so absorbed, or if mobilised by calcium, the storage is interfered with. Possibly improper storage of the fat may account for the tendency of a high fat diet to produce glycosuria in some cases of diabetes.

It is noticeable that practically all conditions which lead to a hyperglycæmia lead to a lipæmia as well; this may be attributed to diminished oxidation. We have been able to produce a distinct rise of blood-fat in addition to a hyperglycæmia by the injection of adrenalin (from 0·48 to 0·56 per cent.); in this case, at least, it is difficult to understand why the liberation of a large amount of oxidising material should be accompanied by an increase of the substance to be oxidised. We suggest that a more probable explanation is that both were stored and liberated together, an explanation which recent work on the effect of insulin in diminishing lipæmia does much to confirm.[6]

In conclusion, we wish to express our thanks to Prof. Shaw Dunn for allowing these experiments to be conducted in his laboratory.

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3. Brit. Med. Jour., 1921, ii., p. 586.
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A SERIES OF CASES OF TUBERCULOSIS TREATED WITH SPAHLINGER'S VACCINE.

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DURING the period 1913–14, the following cases were treated at Victoria Park, by means of the Spahlinger vaccine. (Cases 10 and 11 were treated with serum.) In each case the nature of the treatment was explained as far as possible to the patient or his relatives, and permission to use it obtained. One of us (E. H. C.) was responsible for the treatment, and the other (S. R. G.) for the laboratory examinations involved, whilst Mr. Spahlinger himself prepared the vaccines in his own laboratory. As far as we can ascertain, the following list comprises all the cases treated, with the exception of one, some sheets of whose record have been unfortunately mislaid. It was not a fatal case. On leaving Victoria Park, some of these patients had a further course of vaccine at Mr. Spahlinger's laboratory in London until October, 1914, but the records here given deal only with the period of their treatment in Victoria Park Hospital.

CASE 1.—J. W. A., aged 35, light meter maker. Family history of tuberculosis. History of cough for last two winters, hæmoptysis two months ago. On admission, 21/6/1913, there were signs of infiltration at right apex and left upper lobe; mild pyrexia, small amount of sputum, tubercle bacilli present; weight, 8 st. 10½ lb. Thirty-two injections given. On discharge, 17/1/1914, there were no active physical signs, temperature was normal, the last three sputum examinations were negative, and the weight 9 st. 3½ lb. In 1923 reported as well and at work since 1915.

CASE 2.—J. H. C., male, aged 39, furniture remover's porter. History of cough, hæmoptysis six years ago and

again recently, and of loss of weight (1 st.); in-patient Brompton Hospital, 1909, later Mount Vernon, and South Mimms. On admission, 29/11/1913, signs of some re-activity of old lesions, but afebrile; weight, 10 st. 13½ lb. There was a small amount of sputum, tubercle bacilli found once in 19 examinations. Twenty-three injections given. On discharge, 9/4/1914, there were no signs of active disease, and weight was 11 st. ¼ lb. In 1923 reported as well and at work since 1915.

CASE 3.—C. D., male, aged 34, cook. Pulmonary tuberculosis first diagnosed in 1911; had lost 9 lb. in weight. On admission, 4/8/1914, there were signs of infiltration of right upper lobe and left apex, mild pyrexia; weight, 9 st. 10¾ lb. Sputum was scanty and contained tubercle bacilli. Had had injections of Spahlinger vaccine before admission. Five injections given at Victoria Park. On discharge, 3/10/1914, there were no signs of active disease, temperature was normal, sputum absent, and weight 10 st. 1 lb. In 1923 reported as well and as having been in active work since 1915.

CASE 4.—G. W. J. F., male, aged 37, general labourer. Father and one sister had died of tuberculosis. Had lost 23 lb. in weight. Had previously been an in-patient at Victoria Park in 1912, when he had 29 sputum examinations, only one of which was positive; transferred to sanatorium in 1913. On admission again, 27/5/1914, signs were chiefly bronchitic, with some infiltration of both lungs; there was mild pyrexia with scanty sputum, 17 examinations for tubercle bacilli being negative; weight, 9 st. 6½ lb.; dyspnœa on exertion, pain in chest, palpitation, giddiness, indigestion. Fifteen injections given. On discharge, 14/10/1914, there was no evidence of active disease beyond a few scattered rhonchi; temperature normal; weight, 9 st. 13½ lb. Enlisted in army during war. At present time attending out-patient department as a pensioner; three examinations of sputum for tubercle bacilli have been negative. Reported as at work since war service.

CASE 5.—F. M. J., female, aged 34, post-office clerk. Father died of pulmonary tuberculosis. History of cough, general weakness, dyspnœa, night-sweats, loss of weight (1 st.). Hæmoptysis three months ago. On admission, 24/10/1913, she had tachycardia, pains in back, indigestion, and signs of infiltration of both upper apices and left base; no fever; a trace of sputum on one occasion only, when it contained no tubercle bacilli; weight, 6 st. 8 lb. Fourteen injections given. On discharge, 17/1/1914, moist sounds had cleared up and weight was 6 st. 8¾ lb. In 1923 reported as well and at work since 1914.

CASE 6.—J. E. P., female, aged 39, married. Father died of pulmonary tuberculosis. History of cough, dyspnœa, night-sweats, general weakness, and loss of weight (1 st.), six months' duration; hæmoptysis three months ago. On admission, 24/10/1913, she had pain in back, indigestion, tachycardia, and slight pyrexia, with signs of early infiltration of both apices and left base; a trace of sputum obtained on two occasions only, no tubercle bacilli present; weight, 7 st. 13 lb. Eleven injections were given. On discharge, 20/12/1913, there were no active signs in lungs and no pyrexia; weight, 8 st. 5 lb. In 1923 reported as well and at work since 1914.

CASE 7.—A. W., male, aged 49, hairdresser. History of cough for last seven years, with hæmoptysis three years ago, and recent loss of weight (10 lb.). Pulmonary tuberculosis first diagnosed in 1911, when he had treatment in a sanatorium. On admission, 22/9/1913, there were signs of infiltration of whole of right lung with excavation and disease of left upper lobe; laryngitis; afebrile; half an ounce of sputum daily, tubercle bacilli present; weight, 9 st. 6 lb. Thirty-two injections given. On discharge, 10/2/1914, chest almost dry, sputum very scanty, bacilli present on last examination a week before discharge; afebrile; weight, 9 st. 8 lb. In 1923 reported as well and at work since 1914.

CASE 8.—J. C. N., aged 40, chauffeur. History of cough, two to three months' duration, with loss of weight (6 lb.) and a streak of blood in sputum a fortnight before admission. Admitted 19/9/1913, with signs of infiltration of upper lobe, half an ounce of sputum daily, tubercle bacilli present; afebrile; weight, 9 st. 2 lb. Twenty-three injections given. On discharge, 15/1/1914, no moist sounds were found in lung, and last four sputum examinations showed no tubercle bacilli; afebrile; weight, 8 st. 11 lb.

CASE 9.—W. T., male, aged 37, engineer's labourer. History of chronic cough for some years, with loss of weight (9 lb.), tubercle bacilli reported to have been found in sputum by panel doctor and also whilst at sanatorium. On admission, 18/10/1913, there were signs at both apices and left base behind, but sputum was scanty, and no tubercle bacilli were present; afebrile; weight, 10 st. 5¼ lb. Fifteen injections given. On discharge, 14/1/1914, there were no signs of activity, still a trace of sputum, but nine examinations for bacilli had been negative; afebrile; weight, 10 st. 8½ lb. Reported as killed in France during the war.

CASE 10.—A. E. F., male, aged 37, brass-plate maker. History of cough, &c., 10 weeks' duration, and loss of weight (15 lb.). On admission, 20/10/1913, he had dyspnœa, general weakness, pain in chest, indigestion, and signs all over left side (? pleuritic) and at right upper lobe, with a trace of sputum but no tubercle bacilli; febrile; weight, 8 st. 2 lb. Eight injections (serum) given. On discharge, 28/2/1914, no moist sounds were heard in lung and 15 sputum examinations had been negative; afebrile; weight, 8 st. 12½ lb.

CASE 11.—F. E., female, aged 14. Father and mother died of tuberculosis. History of enlarged glands of neck since three years of age. On admission, 31/10/1913, there were enlarged hard glands on left side of neck, one of them showing signs of breaking down; no signs in lungs, and the trace of sputum obtained on four occasions showed no bacilli; afebrile; weight, 5 st. 2 lb. Eleven injections (serum) given, followed by three more after an interval of rest. On discharge, 1/4/1914, glands had subsided and weight increased to 5 st. 11 lb.

CASE 12.—J. P., male, aged 18, hairdresser. History of cough, &c., two years' duration. On admission, 27/1/1914, there were signs of infiltration of whole of right lung and left apex; sputum scanty, bacilli present; afebrile; weight, 8 st. 13¼ lb. Twenty injections given. On discharge, 20/7/1914, there were still moist sounds in right lung with scanty sputum, and bacilli present; afebrile; weight, 9 st. 8½ lb. Readmitted with stained sputum and tubercle bacilli present, 3/4/1917, but discharged at own request a fortnight later and joined the army. Readmitted again in 1922 and died. Autopsy refused by relatives.

CASE 13.—H. P., male, aged 25, railway clerk. History of cough eight months' duration. On admission, 11/8/1914, there were signs of infiltration of both apices with scanty sputum, tubercle bacilli present; febrile; weight, 9 st. 10 lb. Only four injections given; Spahlinger's vaccine treatment then stopped, owing to outbreak of war. On discharge, 7/6/1915, no moist sounds were heard, tubercle bacilli were still present; afebrile; weight, 10 st. 3¾ lb.; transferred to sanatorium.

CASE 14.—E. F., male, aged 34, schoolmaster. Two brothers died of pulmonary tuberculosis. History of cough, &c., two and a half years' duration, loss of weight, and hæmoptysis. On admission, 25/5/1914, there were signs of infiltration of right upper lobe and left apex; sputum scanty, bacilli present; weight, 12 st. 10 lb. Sixteen injections given. On discharge, 17/9/1914, the lungs were practically dry, sputum scanty, bacilli present; weight, 12 st. 12 lb. Patient reported himself as well and at work in 1916 and again in 1917. In 1923 reported as not traced.

CASE 15.—J. H., male, aged 32, joiner. An advanced case who came over from Paris specially to try the treatment. Three years' history. On admission, 19/5/1914, there were extensive signs in both lungs, with three to four ounces of sputum daily and tubercle bacilli present in large numbers; irregular pyrexia; weight, 8 st. 4½ lb. As no Spahlinger serum was then available and patient was considered too advanced for vaccine treatment, eight injections of lipoids (lecithin, &c.) prepared by Mr. Spahlinger, were given. Patient got steadily worse, and died 16/7/1914. Autopsy could not be obtained.

CASE 16.—C. N., male, aged 22, student. History of pleurisy a year ago. On admission, 15/7/1914, there were signs of fibrosis of whole of left lung and recent infiltration of right apex; sputum scanty, bacilli present; febrile; weight, 10 st. 6¾ lb. Nine injections given, and Spahlinger treatment then stopped owing to outbreak of war. Subsequently an autogenous streptoccocal (from sputum) vaccine given. On discharge, 9/2/1915, signs in lungs had not markedly altered, but sputum contained no tubercle bacilli; still febrile; weight, 10 st. 6 lb.

CASE 17.—A. W. T., male, aged 34, groom. History of cough, hæmoptysis, &c., for the last ten weeks. On admission, 1/12/1913, there were signs of infiltration of right upper lobe, with excavations at apex and infiltration at left hilus; slight pyrexia; sputum scanty, tubercle bacilli present; weight, 9 st. 9 lb. On discharge, 30/6/1914, no moist sounds were heard; afebrile. In 1920 reported as well and at work, and in 1923 as not traced.

In fairness to Mr. Spahlinger we would point out that the cases were treated during the early stages of his research, and that the work was interrupted by the war. We have refrained from making any comments on the cases.

ACUTE *BACILLUS COLI* INFECTION OF THE GASTRO-INTESTINAL TRACT

IN A NEW-BORN BABY, CONTRACTED FROM ITS MOTHER.

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THERE are very few records of fully investigated cases of acute gastro-intestinal infection in the new-born contracted from the mother at birth detailed in the literature. Julius Hess[1] states that streptococcal infection of the infant may occur through the maternal circulation, or secondarily through the mother's milk, lochia, or other infected material reaching the gastro-intestinal tract of the baby. Infections of the intestinal tract due to dysentery, typhoid, and paratyphoid bacilli are seldom seen during the first few days of life unless the mother is infected, but colon infections are not so uncommon. Nauwerk and Flinzer[2] quoted by Ritter von Reuss, refer to the case of a child who died on the second day after birth from melæna. *B. paratyphosus* B was isolated and was agglutinated by the mother's blood. The mother, a few weeks before delivery, had suffered from severe diarrhœa. These authors also suggest that during birth infection of the child may occur from bacteria present in the mother's vagina, or that infected lochia may be swallowed by the child and cause an infection of the intestinal tract.

As we possess the full records of the illness of a child from birth up to and including the period of convalescence, we have considered it advisable to place our observations on record so that this method of infection of the child may be fully considered in the future. The mother in this case had suffered from an infection of the urinary tract due to a colon bacillus which had caused acute symptoms with high temperature and the usual associated clinical phenomena on two occasions during the antenatal period.

It may be advantageous here to refer briefly to the work of Dudgeon, Wordley, and Bawtree[3] on *B. coli* infections of the urinary tract. They have divided these infections into hæmolytic and non-hæmolytic, and further subdivided the two groups with agglutinating antisera. They have shown further that in colon infections of the urinary tract it may be possible to isolate the causative organism from the intestinal tract. In their experience, the most severe urinary infections are caused more commonly by hæmolytic strains, and the infections caused by hæmolytic colon bacilli are more common in the male sex. The commonest hæmolytic strain in coli infections of the urinary tract is that labelled by them as "Dow," and this is the responsible organism in the case about to be described in detail.

Clinical History.—Female child; full term; labour normal. Birth weight 8 lb. Breast-fed from birth, at four-hourly intervals; five feeds. The third day after birth the baby became very restless and began to vomit. The vomiting occurred during feeds and in the intervals, on the average three to four times daily. Test weighing showed that it received 21 oz. of milk on the fifth day. From the sixth day it was fed on expressed breast milk diluted one-third, so that the total amount of milk allowed was 15 oz Normal meconium was passed at the outset, but on the fifth day mucus began to be present in the stools. The child was first seen by one of us (R. C. J.) on the ninth day; she was then very restless, the limbs were rigid, colour was greyish. She was passing thick tenacious mucus, vomiting mucus, and had three septic fingers. Temp. 99° F. Weight, 7 lb. 3 oz.

Treatment.—Treatment was commenced by giving 1 drachm each of castor and olive oils. She was fed on expressed breast milk, boiled for four minutes and diluted one-fourth with water. On the twelfth day the condition was worse; the greyish colour was more marked; vomiting was more frequent and much more mucus was passed per rectum; the weight had fallen to 7 lb. Rectal irrigation was ordered with a solution of bicarbonate of soda followed by normal saline. During the next few days the amount of mucus passed in the stools was excessive; restlessness was very pronounced; there was evidence of severe abdominal discomfort, and the fingers were still septic. Rectal lavage caused the evacuation of considerable quantities of mucus, together with milk curds. The temperature varied from 97°–99°. Some septic spots now appeared on the back. Castor oil was given at repeated intervals, and syrup of dimol, 15 minims, three times daily. The weight fell to 6 lb. 14 oz. on the seventeenth day.

Course of Condition.—On the twenty-fifth day feeding with breast milk had to be discontinued owing to the mother's condition, as in addition to a colon infection she was suffering from organic heart disease. The child was then fed on a modified unsweetened condensed milk mixture giving percentages of sugar 5·7, fat 1·4, protein 1·4. The caloric value of the food was 216 against a theoretical caloric requirement of 350. The sugar (dextri-maltose) was gradually raised to 7 per cent., but the fat was kept low owing to a marked inability to digest fat. By the thirty-fifth day the child was taking sufficient food to yield its theoretical caloric requirement—i.e., 350 cals. Mucus continued to be passed at intervals but became much less; the septic lesions healed and the colour improved. Orange juice was later introduced into the diet. Small vomits continued after feeds, and in some of these mucus was present. The weight showed a steady increase. From the thirty-second day the diet was gradually changed to a fresh cows' milk mixture, giving percentages of sugar 6·9, fat 2·7, protein 1·5. It was not until the sixty-ninth day after birth that the mucus had disappeared from the stools on naked-eye examination, and these now became normal for the first time. After this time the vomits were less frequent, but they still contained small quantities of mucus at intervals. The cows' milk mixture was continued, but it was still found necessary to keep the fat down to 2·7 per cent. (a 50 per cent. crude cod-liver oil emulsion was used to adjust the fat).

The child now (18 weeks) appears to be in better health; the stools are normal, but there are still occasional vomits with mucus, and the last sample of mucus examined (at 16 weeks) showed the presence of the same strain of *Bacillus coli* in abundance. The temperature varies between 98° and 99°. The urine (at 18 weeks) contained bacilli, but no pus, and the bacillus proved to be the same strain of *Bacillus coli* as found elsewhere.

Bacteriological Examination of Mother.

Urine.—Very turbid; pus, masses of Gram-negative bacilli, and traces of sugar present. A pure culture was obtained of an actively hæmolytic colon bacillus.

Lochia.—Leucocytes abundant and Gram-negative bacilli; pure culture obtained of an actively hæmolytic colon bacillus. Breast milk: First examination made 11 days after the birth of the child; some polymorphs present, but no bacteria seen; epithelial cells numerous, both those containing fat droplets and fat-free cells. Free fat and degenerated cells abundant. A considerable growth was obtained of a non-hæmolytic Gram-positive short-chained strepto-diplococcus, which formed acid in mannite, lactose, and salicin, firmly clotted milk, but inulin was unaffected. The milk was re-examined a week later; streptococci were present but relatively scarce, but the *Staphylococcus albus* was abundant. Colon bacilli were not cultivated on either occasion.

Blood.—Examination made 18 days after the confinement. Red cells, 4,260,000 c.mm.; hæmoglobin, 72 per cent.; colour index, 0·8; leucocytes, 6720 per c.mm.; polymorphs, 71 per cent.; eosins, 6 per cent.

Blood Serum.—The blood serum gave an end-point agglutination with the typhoid antigen of 1 in 100, 1 in 25 with paratyphoid A, but no reaction with B or C (inoculation).

Bacillus Coli Reactions.—Several strains were employed as antigens, but the only positive reaction occurred with the standard hæmolytic urinary antigen "Dow" which is similar to the organism infecting both mother and child. A complete reaction occurred with a dilution of 1 in 100, incomplete 1 in 400, and the end-point of the reaction was 1 in 1000. The serum was also tested for the precipitin reaction with the same strain of colon bacillus. The filtered antigen employed by Dudgeon, Wordley, and Bawtree[3] was used. A positive reaction occurred with dilutions of 1 in 5, 10, 20, 40, and 80.

Bacteriological Examination of Infant.

Fæces.—Mucus present in great abundance; well-marked bile reaction obtained; blood present and masses of both leucocytes and epithelial cells. Fats and soaps also present.

A very heavy growth was obtained of the hæmolytic bacillus coli, and of a non-hæmolytic streptococcus. These were the only bacteria present on blood-agar plates after the motion had been dried on tiles as introduced by Dudgeon for the routine bacteriological examination of the fæces.[3,4] The streptococcus present in the fæces of the baby was morphologically and culturally similar to the streptococcus which had grown so abundantly in the mother's milk, and in both instances was non-hæmolytic. The *B. coli*, which was actively hæmolytic in solid and liquid media, was similar in every detail with the strains isolated from the mother. A second examination of the baby's fæces was made 14 days later. They were now semi-solid, and only traces of mucus were present. Hæmolytic colon bacilli were present, but relatively scanty as compared with the previous records. Numerous colonies of hæmolytic *Staphylococcus aureus* and *albus* were obtained and of non-hæmolytic streptococci. The urine was normal, but during convalescence the infant developed a bacilluria, due to the same strain of colon bacillus.

Vomit.—The thick mucus vomited by the baby was examined. Bacilli were found to be numerous, and an abundant growth of hæmolytic colon bacilli and non-hæmolytic streptococci were obtained. On re-examination one week later colon bacilli were not cultivated, but were isolated at a later period.

Colon Bacilli.—The same strain of colon bacilli was isolated from the urine and lochia of the mother, and from the intestinal mucus, gastric contents, and urine of the infant. The colonies formed abundance of acid and gas in lactose and mannitol, rapidly clotted milk, gave a marked indol reaction, and did not liquefy gelatin. Saccharose was rendered alkaline, while acid and gas was formed in dulcitol, but this medium subsequently became alkaline. These colon strains were very actively hæmolytic on blood-agar, and in 0·5 per cent. and 0·85 per cent. sodium chloride in peptone water to which 0·1 c.cm. of human red cells was added. The hæmolytic action was of equal intensity in both the stages detailed by Dudgeon, Wordley, and Bawtree.[3]

Serological Results.—The bacilli isolated from the various sources referred to were subcultured on ten successive occasions in veal broth and tested with the various colon anti-sera derived from hæmolytic and non-hæmolytic strains referred to by the above-mentioned investigators. The anti-serum made from the commonest hæmolytic colon strain known as "Dow" reacted to full titre with these cultures. The end-point of 1 in 20,000 was reached, which is the limit of reaction between the anti-serum and its own antigen. It was also shown that the blood of the mother reacted with this antigen to the extent of $\frac{1}{10000}$, which is a very strong colon agglutination reaction for a human serum.

Harvey Cushing and Livingood[5] published a most interesting and valuable contribution to the bacteriology of the alimentary canal in the Johns Hopkins Hospital Reports in 1900. The intestinal flora are grouped into the obligatory or permanent intestinal bacteria, and the transient which are introduced with the food and persist only when a suitable pathological process is present in the intestinal mucosa or when they are the cause of such a condition. Cushing and Livingood refer to the original work on human sucklings by Escherich in 1885 and 1886, where he showed that *B. lactis aerogenes* is the obligatory form which is present high up in the digestive tract, while *B. coli* flourishes lower down. The essential fact, however, that these bacteria which are not present in the meconium at birth must enter with the food, swallowed air, or during bathing of the infant, is discussed. In our case the colon bacillus was present in pure culture in the stomach mucus, as well as in that passed per rectum, and the organism known as the *B. lactis aerogenes* was not isolated. Todd[4] examined 101 specimens of normal fæces from 91 healthy children under 1 year of age. The stools were examined bacteriologically by Dudgeon's method referred to in detail by Todd and Wordley.[6] Hæmolytic colon bacilli were obtained in 12 cases, and in eight of the number the ages of the babies, which were breast-fed, varied from 2 to 19 days. It is important, however, to contrast the findings in our case, in which the colon bacilli cultivated at the commencement of the illness were all hæmolytic and were present in great abundance, with the findings in Todd's cases, where hæmolytic colonies were present, but only in limited numbers. Of the eight strains isolated by him, six were agglutinated by the colon anti-serum (hæmolytic type "Dow") which is the same anti-serum as we employed.

Discussion.

At the present time, while world-wide attention is devoted to the subject of infant welfare and the causes of infant mortality, it is of the utmost importance to realise that various infective conditions may occur at the ante- and post-natal periods and at the short interval during the birth of the child. It is to this intermediate or intra-natal stage that this case which we have described in detail belongs. In this instance the mother was infected with a certain strain of *B. coli* which had produced two attacks of acute coli fever. The urine contained a large amount of pus and masses of bacilli, and the lochia also were similarly infected. In our opinion, the baby was infected at birth by swallowing the urine or lochia in which the organism was present in abundance. There is very little information to be obtained from the literature of this method of infection, although some continental and American writers refer to it. The possibility of the child being infected during the ante-natal period with this organism must also be considered, as it is known to occur in typhoid and paratyphoid fevers from infection in the mother. Our view that the infection occurred at birth is supported by the fact that the illness commenced about three days after birth, and the condition of the child at birth was perfectly satisfactory. The illness commenced and continued with gastro-intestinal symptoms and associated clinical phenomena. The child passed thick mucus by the bowel for some weeks and also vomited mucus. The causative organism was present in the intestinal mucus for many weeks, and 18 weeks from the onset of the illness it was present in the vomited material during a gastro-intestinal upset. At this period the urine was found to show a bacilluria due to the same organism. The illness was so severe that it nearly cost the life of the child, and improvement only occurred after many weeks of most careful nursing and treatment. It was thought that the mother's milk might also be infected with the colon bacillus, partly because of the general infection from which she had suffered, but also owing to information obtained by us from our investigations on the bacteriology of human milk which are now in progress. Repeated examination, however, failed to confirm this suspicion. It is possible from the available evidence that the heavy streptococcal infection of the mother's milk may have assisted in the causation of the gastro-intestinal infection in the infant.

In the case of breast-fed infants, a gastro-enteritis is very frequently caused by over-feeding, but when the amount of breast milk is proved by test weighing to be *not* in excess, and the enteritis continues with loss of weight, the case we have reported indicates the necessity for: (1) A bacteriological investigation of the breast milk, as well as a chemical examination; (2) a bacteriological examination of the stools and vomit of the child.

Further, when dealing with women known to have a coli infection, it would appear wise to take special care to cleanse the mouth of the child as soon as possible after birth with some non-irritant antiseptic solution, in a similar manner to which the eyes are treated with silver nitrate solution when a gonococcal infection in the mother is present.

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A CASE OF

QUINTUPLE PREGNANCY.

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IN 1904 Prof. Nijhoff[1] of Groningen (Netherlands) published the notes of a case of quintuplets which occurred in the practice of his friend, Dr. De Blécourt. With De Blécourt[2] he collected from the obstetrical literature, from 1694 to 1900, 28 additional cases. These they published the same year in book form. Further cases were recorded by Bernheim[3] in 1904, Martin[4] in 1917, and Hehir[5] in 1922. We have not been able to procure a copy of De Blécourt's and Nijhoff's monograph, but in the four cases above quoted the children were all well formed, although immature, and in three cases at least they died in a few hours or days. In the case reported by Sir P. Hehir, the children were stated to be of quite large size and doing well the day following birth. To date, therefore, it appears that 32 cases of quintuple pregnancy have been recorded.

The case which we now report differs from those already quoted in that two of the five fœtuses were monsters. One was anencephalic, and the other a small monstrous embryo only 3 cm. long.

History.—The patient, a multipara aged 33, had been married 11 years, and pregnant four times. Her first pregnancy terminated in a full-term normal labour ten years ago, and the child is still alive and healthy. Five years later she had a second uneventful normal labour, child alive and well. On May 19th, 1921, she aborted a two months fœtus and the uterus was curetted. Following the curette, she developed an abscess in the uterine wall, which subsequently burst into the peritoneal cavity. The patient had a perilous time, but was able to leave hospital in five weeks.

Her fourth pregnancy is the one under consideration. Her last menstruation ceased on May 26th, 1922. She was first seen at the beginning of October (by S. R. F.), wasted, anæmic, and slightly jaundiced. The uterus reached to just below the umbilicus. No fœtal parts could be felt, the patient said she had not felt movements, and no fœtal heart could be heard. Other signs of pregnancy were present, however, and on bi-manual examination the abdominal tumour was undoubtedly the uterus. It was felt certain, therefore, that the patient had within her uterus a product of conception.

Admission to Hospital.—Although the vomiting ceased the patient continued to lose flesh and appetite. She was admitted into hospital on Nov. 2nd, 1922. The uterus had now reached to three fingers-breadth above the umbilicus, but still no fœtal parts could be felt and no fœtal heart heard. The patient was very thin and slightly jaundiced. An examination of the urine proved negative. It was decided to empty the uterus. The cervix was dilated up to No. 12 Hegar, and a small rubber hydrostatic balloon was inserted into the lower uterine segment. After remaining in for 24 hours without labour resulting, it was removed and on the 5th the lower uterine segment was plugged with gauze.

Delivery.—During the night the patient had labour pains, but they were weak, occurred only at long intervals, and finally ceased altogether at 6 A.M. Mr. Thomas Holmes examined the case, and at 11 A.M. on the 6th the patient was anæsthetised. After removal of the gauze the os was found to be almost completely dilated and a bag of membranes presenting. The membranes were ruptured, a pair of feet brought down, and a small fœtus extracted. Another bag of membranes presented and was ruptured, and another fœtus extracted by the breech. Two others followed in exactly the same way. Rather sharp hæmorrhage now occurred, and the placenta was removed manually. It was very adherent and unfortunately damaged a good deal in its removal. Attached to the placental mass by a long thin cord a small smooth body was noticed and preserved; it proved to be a monstrous embryo. The four children were all immature, alive when born, but all died within half an hour. All were females, three were perfectly formed, one was an anencephalic monster. Their lengths and weights are as follows: (1) 29 cm., 15¼ oz.; (2) 30 cm., 15½ oz.; (3) 28 cm., 13¾ oz.; (4) 23 cm., 9¾ oz. (anencephalic).

The fifth fœtus was entrusted to Dr. Thomas Walmsley, professor of anatomy in the University of Belfast, who stained and sectioned it, and reported it as being a small monstrous mass measuring 3 cm. in length. "Attached to about the centre part of its anterior surface there was a delicate umbilical cord which contained, as demonstrated on microscopic section, small thin walled blood-vessels. The embryonic mass itself, on section, was found to consist of a surface covering of well-differentiated ectoderm, in which skin glands were definitely formed. Within the ectoderm the tissue mass was of the undifferentiated round cell type, a small amount of pre-cartilaginous tissue in the head region being the only definitive formation which could be recognised. There is no doubt, of course, of the embryonic nature of the rudiment."

The placenta weighed 15¾ oz. It was much damaged, but four separate amniotic sacs could be pieced together. The chorion could not be traced with any certainty. Five umbilical cords were attached to the placenta. Four were of ordinary size and corresponded to the formed fœtuses; the fifth, attached to the small monster, was only 1 mm. in diameter and 4½ in. long.

The patient had a normal puerperium, and left hospital in 14 days much improved. Two months later she had regained her lost weight and was looking and feeling quite well. With regard to the family history, a sister of the patient has had one pair of twins, and the wife of a brother has also had twins once. Otherwise the family history is negative.

Our thanks are due to Prof. Walmsley for the preparation of the sections, to the librarian of the Royal Society of Medicine for the loan of papers, and to Mr. T. Holmes for permission to publish the case.

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Medical Societies.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.

THE eighty-second annual meeting of the Association was held at the rooms of the Medical Society of London and the Royal Society of Medicine from July 9th to 13th, under the presidency of Lieut.-Colonel E. GOODALL (Cardiff Mental Hospital).

Sir Fredk. Willis, Sir Arthur Rose, and Dr. Havelock Ellis were unanimously elected honorary members of the Association. Dr. J. Carswell was appointed Maudsley Lecturer for 1924.

Dr. J. G. PORTER PHILLIPS (resident physician, Bethlem Hospital) read a paper on

Early Treatment of Mental Disorder,

really a survey of the out-patient practice of that institution. He said that in its early stage mental disorder might often permit the individual to adjust himself to his surroundings and follow his avocation without ever deserving the label "insanity." The exacting nature of life was chiefly felt by those with a weak or unstable mental make-up. Latterly several specialised clinics had sprung up to deal with early treatment of mental disorder. The out-patient department at Bethlem Hospital was inaugurated in 1919, and in 1922 the Maudsley Hospital commenced the indoor and outdoor treatment of civilians. The most hopeful results were to be looked for in cases in which mental and physical collapse was only partial and there was a good history. On the economic side of the question he pointed out that the cost per patient in out-patient treatment was about one-tenth that of a resident patient in a county mental hospital. Early treatment not only avoided much domestic misery and exhaustion of other members of the family; it also afforded good opportunities for research, whose results would greatly benefit mankind. At the Bethlem Hospital clinic 323 new cases were seen

during the year. Dr. Phillips emphasised the great importance of the social side of this work carried on by the almoner and inquiry officer, who made careful and tactful inquiries into the home life and general conditions of the patients. He reviewed the provisions of the new Mental Treatment Bill, which he regarded as a stride forward in State medicine, remarking that the secret of modern progress often lay in propaganda.

The Relation of Chronic Sepsis to Mental Disorders.

This was the title of a very exhaustive paper by DR. HENRY COTTON, lecturer in psycho-pathology at Princeton (U.S.A.) University. He first paid a tribute to the part played by Dr. William Hunter in 1900, in drawing attention to the rôle of chronic sepsis in medicine; also to the work of Dr. Chalmers Watson.[1] In 1905 Dr. Cotton, working under Alzheimer at the psychiatric clinic in Munich, found distinct changes in the nerve cells in so-called functional disorders. Alzheimer regarded these changes as very significant. This shifted the conception of these disorders, which were previously considered to be primarily diseases of the mind and not of the brain. The former view was not logical, as abnormal structure seemed a necessary condition for abnormal functioning. He set himself to determine the cause of the associated fatty degeneration of the cortical nerve cells in the functional psychoses. A five years' study of disturbances of the endocrine system gave no decisive result, and gland therapy was a failure. In 1918, following the work of Hastings and King, they began to eradicate all foci of chronic sepsis from their patients, and the reward was an increase in the recovery-rate from 37 per cent. to 85 per cent. in the first year. Attention to the genito-urinary system was an important part of this work, and in some enucleation of the vesicles was necessary. It was not claimed that this work had solved the problem of mental disorders, but it had shown that disease of the brain tissue was the fundamental condition. The success of this work was based on the utilisation of all the methods developed in the field of general medicine, and especially that of chronic sepsis. Heredity, he thought, should not occupy the important place it had been assigned in the past: it was an idea which had been an obstacle to advance. He also thought that many of the extravagant claims made by psycho-analysts were unjustified, and Freudism had been a great handicap to psychiatry. He did not minimise the importance of the psychogenic factors in the causation of the psychoses, but regarded them as precipitative rather than causative, for in some cases psychosis developed without such factors being present. He proceeded to establish the thesis that chronic sepsis was a large and very important determining factor in mental disorders, and that these psychotic patients harboured multiple foci of infection. Hence he regarded the psychosis as a symptom—sometimes a terminal symptom—rather than as a disease entity. The paper contained a detailed reference to the foci found, and their micrococcal inhabitants. He was able to return 82 per cent. of the discharges as recoveries; and a successful treatment of 1412 cases in four years.

A discussion followed, in which DR. W. HUNTER, DR. CHALMERS WATSON, DR. T. C. GRAVES, and others took part.

DR. CLEMENT LOVELL (pathologist at Bethlem Hospital) read a paper on the

Surface Tension of the Serum in Anxiety Psychoses.

He said no relation had been traced between the disappearance of blood-sugar and the alteration of the surface tension; but by dialysing heated and unheated specimens against distilled water he found a difference in the union of electrolyte and protein in the normal person and the anxiety case. In anxiety cases he found there was increased nucleation of the interlobular connective tissue of the pancreas. If the theory he advanced was true, a large number of the anxiety cases were due to a disordered endocrine balance, in which the pancreas was primarily at fault. Hence the treatment should be aimed at stimulating the pancreas, and vaccine methods directed to inflammatory conditions.

DR. R. M. STEWART read a paper entitled

General Paralysis: Its Unsolved Problems.

Among the questions he propounded were the following: Was the *Spirochæta pallida* alone responsible for the genesis of general paralysis? When and how did it gain access to the nervous system? Was there a special strain of it in these cases? Or must the individual resistance of the infected person be considered as the deciding factor in the development of the disease? What was the meaning of the long latent interval before the onset of symptoms? Why did the cerebro-spinal fluid contain no organisms at a time when the brain contained millions? Why did not tabes, general paralysis, and optic atrophy occur in conjunction more frequently? Why did arsenical compounds fail to cure? He devoted his paper to a consideration of two problems: (1) the time of invasion of the nervous system in general paralysis; (2) the existence of special neurotropic strains of the *Spirochæta pallida*. General paralysis of the insane seldom occurred less than six to ten years after syphilitic infection; in tabes the period was usually longer. It seemed probable that the spirochætes circulating in the blood-stream gained access to the brain or its membranes during the time of general dissemination, and lay dormant until there occurred a favourable opportunity for their multiplication. This view was supported by the biochemical and other changes in the cerebro-spinal fluid. If the spinal fluid and the nervous system showed changes in from 30 to 40 per cent. of all cases of syphilis, why did general paralysis develop in only about 5 per cent. of infected persons? Two explanations could be offered: the organisms which attacked the nervous system might do so because they possessed a special neurotropic action; or the disease might make its appearance because the patient possessed a neuropathic disposition. These he considered in some detail, pointing out peculiar racial features in regard to the incidence of general paralysis of the insane. H. Noguchi had found that the incubation period of thicker forms of spirochæte was long and the lesions nodular, hard and sharply defined; with the thinner and more active types, large diffuse lesions were produced. It seemed that deficient early treatment of syphilis was a determining factor in the onset of general paralysis later in life.

Histological Examination of Pituitary Body.

Sir FREDERICK MOTT and DR. IDA M. D. ROBERTSON contributed an instructive analysis of 110 cases in which the pituitary body of patients dying in asylums and hospitals was histologically examined, the work having been done by Dr. Robertson and verified by Sir Frederick Mott.

The summary of the conclusions was as follows: The cases of tuberculosis showed a certain amount of exhaustion, as evidenced by the breaking up of the cytoplasm of the eosinophil cells, the increase of the chromophobes, and the increased number of nuclei. The intracellular lipoid was also decreased. In general paralysis the lipoid content, in both cells and interstitial tissue, was increased. Cases of dementia præcox showed a marked degree of exhaustion, to almost complete atrophy of the cellular elements of the gland. The distinguishing feature of this, as compared with tuberculosis, was a deficiency of the nuclear chromatin. The association of tuberculosis with dementia præcox, especially with the advanced stages, was very marked, but in one of the most definite cases tuberculosis was not present. With regard to other psychoses, there was, normally, a considerable similarity in structure and staining reactions of the eosinophil cells of the pituitary gland to the interstitial cells of the testes.

DR. T. BEATON (Bethlem Hospital) contributed an elaborate paper on the

Psychogenic Factor in the Causation of Mental Disorder.

He said that there were two main views of insanity according to whether the causal factors accepted

[1] THE LANCET, 1922, ii., 127, 231.

were psychogenic or physiogenic. The issue between these had been unnecessarily complicated by the persistence of the old argument of body against mind. These must not be regarded as separate and opposed, but complemental. He agreed with McDougall that the dominating partner in the trinity of cognition, affection, and conation was conation; that was the thread of purpose throughout the life-history of the organism which bound the successive phases of experience together. He insisted that the psychological description of mental phenomena must have a correlation in nervous function.

Basal Metabolism in Mental Disorders and the Influence on it of the Diathermic Current.

Dr. JAMES WALKER (Cardiff Mental Hospital) read a paper with this title, paying special attention to dementia præcox. Mental and nervous symptoms occurred, he said, as a result of disease of the thyroid gland, but medication with the extract of that gland should only be employed where thyroid hypofunction was considered to be either a causative or a contributory factor. Several cases of dementia præcox he had shown to exhibit vagotonia—i.e., a subnormal body temperature, a tendency to bradycardia, and respiratory arrhythmia. In one or two of these cases examined during remission he had found an improvement in the basal metabolism and a disappearance of the vagotonic symptoms, showing that the oxidation deficiency in the cells was not a permanent condition. Psychic excitement profoundly affected metabolism, and produced a temporary increase in the sugar content of the blood. The most reliable information was yielded by patients in the stupor class, though these need not necessarily be cases of dementia præcox. He did not think the lowered metabolism was due to a diminution of the thyroid principle or autocoid, but to a decrease in all the bodily functions. With regard to treatment, the heat produced by the high-frequency current was endogenous—i.e., produced in the deeper-lying tissues. It produced a slight fall in the systolic blood pressure, an increase in the leucocytes, in the urine, and in the output of urea and ammonia nitrogen. The current produced, in 20 observed cases of mental disorder, an increase of 10 to 15 per cent. in the basal metabolism, 2 to 3 degrees increase in body temperature, and 20 to 30 beats per minute increase in the pulse. His conclusion was that diathermy was a useful therapeutic measure and one likely to play a definite part in furthering recovery. During remission in dementia præcox the basal metabolism approached that of the normal person.

Diagnosis of Dysenteric Infections in Mental Hospitals.

This subject was dealt with in an able paper by Dr. A. A. W. PETRIE, of the Maudsley Hospital. He said the diagnosis of acute cases was comparatively easy; the difficulty lay in the recognition of very mild chronic and latent cases. He first alluded to the causes of non-dysenteric diarrhœa, including tuberculous and nervous mucous colitis, and ulcerative colitis. With regard to the true dysenteries, the tropical dysentery due to the *Balantidium coli* could be excluded as it practically never occurred in mental hospitals. An investigation of asylum subjects showed 9·7 per cent. to be infected with the *Entamœba histolytica*, compared with 4 per cent. to 8 per cent. in the general population. He entered minutely into the differential characters, remarking that the principal bacilli occurring in bacillary dysentery were the Shiga bacillus and the Flexner bacillus, the former usually causing the more severe types of the disease, but the Flexner being the more common organism in asylum dysentery. In the chronic disease, help could be obtained from the agglutinins occurring in the blood.

The Ranchi European Mental Hospital, India.

The PRESIDENT read to the meeting a paper descriptive of the Ranchi Mental Hospital, contributed by Major OWEN BERKELEY-HILL, its medical officer-in-charge. This is the only mental hospital in India intended solely for the treatment of persons of either European or American parentage. The hospital is built on the "pavilion" system, and covers 85 acres, with ten wards, which will accommodate 92 male and 88 female patients. There is a nurse to every two or three patients and the general health is very good. The methods of life and treatment are detailed in the paper in a very interesting fashion.

In addition to other excursions, members visited the Maudsley Hospital, where Dr. EDWARD MAPOTHER explained the work being done there and gave some demonstrations in the laboratory.

ANNUAL DINNER OF THE MEDICO-PSYCHOLOGICAL ASSOCIATION.—The annual dinner was held at the Hotel Metropole, London, on July 11th, Dr. Edwin Goodall presiding. Dr. Percy Smith, who proposed "The Legislature," gave an interesting sketch of the history of legal restraint in relation to the safety of person and property. The Bill now before Parliament for the admission of patients to county and borough mental hospitals without the formality of certification had, he said, the bulk of professional opinion in its favour. He expressed the hope that its administration would not prove so harsh as to be another form of certification or so exacting as to be another dose of red tape. Lord Onslow, in replying, forecasted the passing of this Bill before the end of the year. The provisions it contained for after-care should often avoid the necessity for further institutional treatment, and facilities were also given for research in mental disease. Lord Riddell and Sir Sydney Russell-Wells also briefly replied. Dr. Goodall, proposing in humorous vein the "Sister Medical Societies," dwelt on the elevating influence of an association of medical men and women. There was, he said, something wrong with the medical fraternity of any community which had no medical society. Sir Humphry Rolleston, Mr. H. J. Waring, Sir William Hale-White, and Dr. Henry Cotton, of New Jersey, replied. Dr. C. Hubert Bond proposed "The Visitors," and Sir Eric Geddes "The Association." Sir Eric Geddes spoke with great sympathy of the vast field for research and investigation opening before mental medicine. Quite apart from hopeful lines of physical treatment, the aid of psychiatry seemed to him, as a layman, almost unexplored. If the case were put before the public clearly and definitely he believed the support obtained for the aims and objects of the Association would be overwhelming. In spite of the tropical heat the dinner was well attended and most successful.

NATIONAL ASSOCIATION FOR THE PREVENTION OF TUBERCULOSIS.

THE ninth annual conference of this Association was held in the University, Edmund-street, Birmingham, on July 12th, 13th, and 14th.

THURSDAY, JULY 12TH.

The conference was opened by the Right Hon. the Lord Mayor of Birmingham (Sir David Davis), who welcomed all members of the Association to the conference. Sir ARTHUR STANLEY presided over the meeting.

The LORD MAYOR in his opening speech referred to the work done in Birmingham in connexion with tuberculosis, and mentioned the fact that in this town, as in a large number of other towns, the campaign against tuberculosis had resulted in a very definite diminution in the number of new cases of the disease. For some three years before the war there was an average of 4000 new cases of pulmonary tuberculosis reported per annum; last year there were about 1700. The fall in the mortality had not been proportionately so great because it related to cases which commenced years ago, but at the same time there had been a decided drop, the rate for those three years being 0·9 per 1000 of the population. That was a reduction of 60 per cent. in mortality compared with the figure of 50 years ago. Fighting consumption was costing Birmingham nearly £90,000 per annum, but if the reduction in the prevalence of the disease be continued then the city was willing to spend the money.

The subject for the morning session was

Care of Advanced Cases of Tuberculosis, especially as regards Prevention of Infection.

A paper on this subject was read by Prof. J. ROBERTSON (medical officer of health for Birmingham), prepared by the medical officer of health for Edinburgh (Dr. William Robertson), who was unable to be present. The opening paragraph of this paper was the cause of much discussion—namely: "It has yet to be realised by sanitary authorities that the segregation of the advanced case of pulmonary tuberculosis is quite as important as is the isolation of small-pox. From some points of view it is more so, because the spread of small-pox can be arrested in an effectual way by definite measures, while the spread of tuberculosis can only be controlled, as far as we know at present, by preventing the diffusion of the infecting micro-organisms." He further stated that there were far too many sufferers from pulmonary tuberculosis, not a few in an advanced stage of illness, wandering about our streets, resorting to places of public amusement, travelling in trains and trams, and freely scattering infection about them. He condemned home treatment when patients were living in overcrowded and insanitary homes totally unsuitable for the isolation of such a dangerous disease. The housing question, he says, is the Alpha of the tuberculosis problem, but when we discuss the advanced case of tuberculosis we reach the Omega of the subject. "A disease that can levy an annual toll of nearly 40,000 persons every year in our country provides an enemy that must be defeated by methods that are at our hands if we waste less time in discussion and get to business. We know that tuberculosis is preventable, and we have seen how better houses will prevent it." Dr. Robertson considered that warrants for the forcible removal to sanatorium of those who cannot with safety be looked after in their own homes, is a measure that will have to be enforced in the near future. "Surely," he added, "we can afford to be drastic when grappling with such a death-dealing malady." Enforced removal of advanced cases also caused much discussion.

In the succeeding discussion Dr. F. N. KAY MENZIES (principal assistant medical officer of health, London County Council) stated that he considered the infectivity of tuberculosis had been greatly exaggerated, and this tended to have a detrimental effect on the work of professional men and to discourage voluntary effort. It also made it difficult for the great organisations in dealing with cases, because it carried with it a stigma on the patient which was hard on him in following his occupation in life. He did not agree that the segregation of tuberculosis was as important as that of small-pox. He further stated that 25 local authorities in this country, Birmingham being one of them, had been given the power compulsorily to remove highly infective cases of tuberculosis for so many months. He had asked these 25 authorities how many compulsory removals they had enforced, and the answer in nearly all instances was not more than one or two. The public would never put up with compulsory removal. He did not agree that housing was the Alpha of the tuberculosis problem. If one factor was to be concentrated upon, the most important was food.

Colonel S. LYLE CUMMINS (David Davies Professor of Tuberculosis, South Wales and Monmouth) said it would be ridiculous to compare the infectivity of tuberculosis with small-pox, and yet the infectivity of tuberculosis was a terribly real and dangerous thing, and it would not do to discard the importance of infection. He considered that the hope for the future lay in the discovery of a specific remedy, a prophylactic vaccine or both. A few months ago such a hope seemed remote. One variety of tuberculin after another had been tried, and the measure of success had not been very great. The last few weeks have opened up for us new vistas of investigation and effort; and once more, as so often in the past, the new light has come from laboratory research. It would be unwise, as yet, to claim that Prof. Dreyer's "antigen" is the long-sought remedy for which we have waited, but it can be stated with certainty that Dreyer has broken fresh ground and that the results already obtained were decidedly in advance of those of any previous worker, and that they are full of hope for the future.

Dr. W. H. DAVISON (assistant medical officer of health, Birmingham) considered compulsory removal a broken reed, and thought segregation in the home should be encouraged. It was the most humane method. There was a good scheme working in Birmingham at present whereby a patient can purchase a bed by the hire-system or have a bed lent to him free of charge. There were about 700 beds in use under this scheme, which was doing wonderful work in preventing the spread of infection. He considered it better to spend money on the proper methods of preventing the spread of the disease at home than on the cost of maintenance of an advanced case in an institution.

Dr. A. FERGUS HEWAT (assistant physician, Royal Infirmary, Edinburgh) considered early cases of tuberculosis might be as infective as the so-called advanced case with an old cavity. Patients who were bedridden and were living in small houses in contact with children he advocated should be removed, as also the cases who were disobedient in their preventive training.

Dr. MARCUS PATERSON (medical superintendent, Colindale Hospital, Hendon) did not agree with compulsory removal except in the case of the "rotter"—i.e., the man who was disobedient and who made no attempt to control infection. He mentioned the difficulty of removing the prejudice of the public against the sputum flask. He has proved this prejudice by travelling to Birmingham with a third-class ticket and a sputum flask instead of indulging in a first-class ticket in order to secure a comfortable journey. He stated that it had been necessary for him to spit into the flask 16 times, but it had enabled him to have a carriage to himself all the way. He thought the conference would do invaluable work if it helped to overcome this prejudice.

Dr. ERNEST WATT (medical officer, Scottish Board of Health) gave some interesting statistical data showing the necessity for the removal of advanced infective cases.

Prof. CAWADIAS (of the University of Athens) told how the disease had been spread in villages in Greece by the return of emigrants. He considered segregation was the course to which reason prompted, but sentiment would not allow them to be too severe.

Prof. J. ROBERTSON (medical officer of health for Birmingham) said that Dr. W. Robertson's statement that tuberculosis was spread as easily as small-pox he felt was not quite correct. He thought, however, that it was very nearly correct, as there was not much difference when they looked at the fact that very nearly the whole of the community was infected with tuberculosis at one time or another.

Dr. BOLTON THOMSON (Hastings), Dr. S. BARWISE (M.O.H. for Derbyshire), Dr. G. C. TROTTER (M.O.H. Islington), Dr. F. L. MOORE (tuberculosis officer for Northumberland), and Dr. ALEX. COLLINS (tuberculosis officer for West Ham) also took part in the discussion, the majority of them disagreeing with compulsory removal.

The subject for the afternoon session was:—

Extent and Nature of Damage Done by Tuberculosis derived from Infected Milk: Methods of Prevention.

The discussion was opened by Mr. JOHN D. WATSON (Birmingham). He explained the work done by the Birmingham Drainage Board to eliminate tuberculosis from the cattle on their farms. The first tuberculin test applied to cows in 1908 showed that 60 per cent. of the milk cows and 12 per cent. of the heifers were tuberculous. Recurring tests gave encouragement to proceed, and they appeared to prove that by the maintenance of consistent procedure it was possible (within four years of its initiation and at trifling expense) to eliminate tuberculosis from a herd of short-horned cows, which on the first test

showed 60 per cent. suffering from the disease. To free a herd from tuberculosis, he said, was not enough; you must be in a position to maintain the herd in a healthy state. He concluded by saying that, important as the attitude of the farmer towards this question may be, the lamentable indifference of the public is the ruling factor. If only milk were a clear fluid like water, and if the public could only see what is so frequently offered to them as clean milk—quite apart from the pathogenic character of the fluid which is offered—they would realise the importance of what the hygienist is trying to do for them.

Sir GILBERT BARLING (Vice-Chancellor of Birmingham University) said that tuberculosis derived from alimentation was especially prone to attack children, especially in glands of the neck and abdomen and bone and joint diseases. He was happy to say, however, that these diseases were distinctly fewer than when he commenced practice 40 years ago. He recommended the appointment of a commission on the question of the pasteurisation of milk, and suggested that something could be done in this direction by the conference.

Mr. JOHN FRASER (surgeon, Royal Hospital for Sick Children, Edinburgh) stated that he had analysed figures for the past ten years and regretted to say that he saw no signs of diminution of surgical tuberculosis amongst children. He considered that the increasing incidence of the present day was most likely due to the widespread unemployment and poverty among our hospital classes. He stated that he was a believer in the overwhelming importance of the bovine infection, and claimed that future investigation would show that it is of even greater importance than we now suspect. The elimination of the bovine infection resolves itself into the preservation of milk from infection, and to secure this the proper means is to arrange for the production and the preparation of the milk that the possibilities of contamination be reduced to a minimum. The first essential of a pure milk production, he stated, is a herd of healthy cows, and this could be guaranteed by the institution of periodical tuberculin tests and the immediate elimination of any animals which react.

Sir HENRY GAUVAIN (medical superintendent, Lord Mayor Treloar Cripples' Hospital, Alton and Hayling Island) exhibited some extremely interesting and instructive lantern slides showing what air therapy and heliotherapy had done towards cures of surgical tuberculosis. He believed that 50 per cent. of the cases of spinal caries, lupus, and infected glands were due to bovine tuberculosis, and no form of food-supply had caused more deaths than the milk-supply of this country.

Mr. BRENNAN DE VINE (chief veterinary officer for Birmingham) stated that during the past 15 years 56 herds of cows had been tested, under the Birmingham scheme, and 37·8 per cent. of the animals had been affected with tuberculosis. He stated that in attempting to eradicate a widespread disease such as bovine tuberculosis in this country, assistance should be offered by the State in order to relieve the burden which falls upon the owner of live stock to the benefit of the general community.

Dr. HAROLD SCURFIELD thought that bovine infection of the human being could be stopped if milk were sufficiently heated. The diminution of the mortality rate of non-pulmonary tuberculosis was largely due to the fact that mothers have been giving their children milk which had been rendered safe by heating.

Mr. WILFRED BUCKLEY (of the National Clean Milk Society) Dr. W. T. MUNRO (medical superintendent, Glenlomond Sanatorium), and Dr. J. WHEATLEY (Shropshire) also took part in the discussion, the latter stating that he did not agree with Dr. Fraser's statement that surgical tuberculosis was on the increase, statistics showed otherwise.

Prof. J. ROBERTSON advocated the pasteurisation of milk and stated there had been an enormous reduction in the mortality from non-pulmonary tuberculosis due to better supervision of the infective consumptive and to the strenuous efforts to free herds from tuberculosis. He stated that Birmingham figures show that non-pulmonary tuberculosis was now a little more than one-third as prevalent as it was 20 years ago.

The annual meeting of the Association and conference of branches was held at the University at 5 P.M., and was presided over by Sir ARTHUR STANLEY. After the usual business of the meeting was over a discussion took place on

Work of Tuberculosis Care Committees; and How the Branches of the Association and Other Kindred Societies can Assist.

Dr. FRANCIS J. H. COUTTS (senior medical officer, Ministry of Health) opened the discussion, and was followed by Miss MCGAW (member of the Council N.A.P.T.) and Mr. G. W. ALLEN (Director, Tuberculous Ex-service Men's Society). They emphasised the necessity of after-care societies to help patients after discharge from sanatoriums. Temporary financial help was not what Care Committees should give. It was the function of a Care Committee to look upon the family of a consumptive as a unit, the whole income of the family should be considered, and the best means found to assist that family in order to enable the patient to live and work under the most satisfactory conditions possible. The necessity for choosing the right type of women for visitors was emphasised; they should be women with plenty of tact to whom patients could feel they could go as a friend and not as an official.

A reception given by the Lord Mayor and Lady Mayoress was held at the City Art Gallery in the evening.

(To be concluded.)

Reviews and Notices of Books.

THE BLOOD-SUPPLY TO THE HEART.

In its Anatomical and Clinical Aspects. By LOUIS GROSS, M.D., C.M., Douglas Fellow in Pathology, McGill University, and Research Associate, Royal Victoria Hospital, Montreal. London: Henry Frowde and Hodder and Stoughton. Pp. 171. 25*s*.

Dr. Louis Gross's monograph on the "Blood-Supply to the Heart" gives an account of the results of his researches on this subject and the special technique which he has employed. Each chapter also contains a short summary of the work of previous investigators and a sketch of the present state of our knowledge in that particular branch of the subject with which it deals. The material was investigated by means of X ray examination after injection with suitable material, and the hearts were finally cleared in oil and sectioned. In the opening chapter the actual technique employed is described in sufficient detail to enable other workers to carry out the method for themselves.

The most striking feature of the book is an interesting series of photographs, which have been very beautifully reproduced, showing the alteration in the relative richness of the blood-supply to the two sides of the heart at different age-periods. At birth the vascularity of the right and left ventricles is approximately equal, but as age advances a marked left-sided preponderance develops, corresponding to the muscular preponderance which has been studied by Müller and other observers. The relative anæmia of the right ventricle is considered to be a potent factor in the ætiology of those diseases which are most liable to prove fatal in old age. In discussing the blood-supply to the valves of the heart, the author puts forward the suggestive hypothesis that the site of election of valvular endocarditis is largely dependent on the vascularity of the different valves at different age-periods. In fœtal life it is the right heart which is most frequently involved. In adults, on the other hand, although relatively few normal valves show a

vasculature, it is the aortic cusp of the mitral valve which most commonly does so, and it is this cusp which is most frequently found to be the seat of endocarditis. Other chapters deal with the normal distribution of the coronary arteries, the variations which are liable to occur, and the veins of the heart. The important question of anastomosis between the coronary arteries is discussed; and in this connexion Dr. Gross lays considerable stress on the importance of the increased richness of anastomoses, and the supplementary blood-supply from the *arteriæ telæ adiposæ*, which are present in the later years of life.

This book demonstrates the value of radiography in this particular branch of anatomical research, and the bearing which anatomy may have upon the clinical problems of cardiology.

THE SYMPATHETIC NERVOUS SYSTEM IN DISEASE.

Second edition. By W. LANGDON BROWN, M.A., M.D., F.R.C.P., Physician with Charge of Out-patients, St. Bartholomew's Hospital. Oxford Medical Publications. London: Henry Frowde and Hodder and Stoughton. 1923. Pp. 161. 10*s.* 6*d.*

THE first edition of this book received favourable notice in THE LANCET some three years ago. It has been thoroughly revised and new material incorporated. In its present form it contains a general account of visceral disease in relation to dysfunction of the sympathetic nervous system, and is suggestive in many instances rather than conclusive. What is lacking largely is pathological confirmation of the presumed faults in the sympathetic mechanisms concerned in disease-production. We are still greatly in ignorance whether a strict line can be drawn between organic and functional sympathetic disorder; when changes in sympathetic ganglia are found histologically we may still query their relationship to the clinical phenomena. The truth is that in the study of this part of the nervous system a rational empiricism has not as yet been succeeded by a body of doctrine based on pathology. Dr. Langdon Brown is clearly aware of the tentative nature of some of his conclusions and admits that some of the views rather in favour to-day are no more than plausible speculations. A beginning has been made, none the less; the sympathetic system is no longer a terra incognita, and the clinician is justified in seeking an explanation of various clinical types in impairment of sympathetic function, however far it be from the stage of objective proof. The book has a good index and useful references to the literature at the end of each chapter.

CHRONOLOGIA MEDICA.

A Hand-list of Persons, Periods, and Events in the History of Medicine. By Sir D'ARCY POWER, K.B.E., F.R.C.S., and C. J. S. THOMPSON, M.B.E. London: John Bale, Sons and Danielsson, Ltd. 1923. Pp. 278. 10*s.* 6*d.*

THIS is an excellent and useful little book, though as the authors say in their preface the biographies are not intended to be complete, nor does the list purport in any sense to be a history of medicine. But it contains a vast amount of information and, we must add, some curious omissions. There is no mention of John of Burgundy, otherwise Johannes de Barba, or John Burgoyne, who may have been the author of Mandeville's travels and who is well known as the author of a treatise upon the Black Death of 1348, many MSS. of which are in British libraries. Still more strange is the omission of any mention of Victor Horsley. But there are also entries of the names of comparatively unknown pioneers in sundry branches of science, such, for instance, as that of Henry Hickman (1800–1829), a general practitioner of Ludlow, who carried out experiments on animals under anæsthesia by nitrous oxide in 1828. Chronologia Medica may be proud of noting him, for his name has escaped the nets both of the Dictionary of National Biography and of Garrison's History. Another interesting entry is that of Adamantios Koraes, otherwise known as Coray, who was a Greek and M.D. of Montpellier (1748–1833). He was a translator of medical books, who left a vast accumulation of notes for an edition of Hippocrates, and he edited the treatise "Airs, Waters, Places," an edition held to be the best extant. On p. 101 we find the following, which, though not exactly inaccurate, is a very loose statement. "1547 St. Mary of Bethlehem Hospital for the Insane founded in London, though Bedlem had been used as an asylum since 1377." An uninstructed reader coming to this passage would imagine the Hospital of St. Mary of Bethlehem and Bedlem to be two different institutions; he would also not gather that the Hospital of St. Mary had really been founded in 1247 as a priory and was first called "hospital" in 1329. The "foundation" in 1547 was of the same nature as the "foundation" of St. Bartholomew's Hospital in 1546, a grudging return of property grabbed by Henry VIII. at the beginning of the Reformation. On p. 45 we note that the elder Bachtishua has his Christian name transliterated as Dschordschis. Why the authors went out of their way to print this queer combination of letters when the simple word "George" would have answered all purposes we do not know. We imagine that it is a French transliteration of the name "Georgees" (to spell it phonetically). Despite these blemishes the book will be found a valuable compilation.

ATOMS.

By T. C. WIGNALL and G. D. KNOX. London: Mills and Boom, Ltd. 1923. Pp. 288. 7*s.* 6*d.*

THIS is a brave attempt, and a very considerably successful one, to explain in popular terms the structure of the atom so that the mystery in which its potential energy is enveloped may be to some extent straightened out for the unscientific. The opening chapter plunges us straight into the story when two of the characters sitting in a railway carriage discuss the possibilities of a *sou* found in the train. Says one of them, "About the most worthless thing one could discover," to which the other replies, "It contains energy equal to 80 million horse-power." The gentleman who thus spoke was "a Johnny on the point of harnessing the atom" according to a popular description of some of his fantastic theories, and he proceeds to explain in simple language, as far as such language will cover the ground, what is meant by atoms, molecules, and electrons, incidentally alluding to the fact that a Greek financier, who is striving to corner the output of the electric workshops of Europe, is anxious to have him for a partner on the ground of his written views. Thereafter follows a thoroughly exciting and well-planned sensational novel, in which the idea is to show what would happen if the atom could be successfully broken up and unlimited energy thereby obtained. As far as has been possible, in dealing with such a theme, the intention has been to be simple, and many associated theories and modern developments have been strictly left on one side. And why not? For, after all, the study of the structure of the atom is extremely recent work, and it is quite likely that some of the results of that work will be found far more valuable than others, while new ideas may be found passing from the realm of fancy to the realm of accepted fact at any moment. It is an excellent notion to familiarise the reading public with the great conceptions of science. It is always quite impossible to follow these great conceptions in laboratory terms, even if the author has the technical qualifications for such writing, unless the reader is an advanced thinker and practical worker himself. To such "Atoms" may or may not appeal. But for a less-equipped audience it may be said that the reading of this novel will place intelligent persons in a position to understand the direction of much modern work and some of its tremendously important meaning. They will be helped to reach this position by a well-planned story of adventure, and we have no hesitation in recommending its perusal.

ENDOCRINE GLANDS.

Einführung in die Klinik der Inneren Sekretion. By Prof. Dr. G. PERITZ, Nervenarzt in Berlin. Berlin: S. Karger. 1923. With 31 illustrations. Pp. 257.

AMONG various contributions to our knowledge of the endocrine glands and their disorders Dr. Peritz's monograph should take a worthy place. Didactic rather than critical, it contains a fair schematisation of present-day knowledge, which is dealt with under the headings of pituitary, pineal, gonads, adrenals, pancreas, thyroid, parathyroids, and thymus respectively; pluriglandular syndromes receive consideration, on a somewhat meagre scale, while attention is also given to the difficult question of the interrelation of the ductless glands and the nervous system. There are very many references to the appropriate literature of the topics handled, but none to the sources of information, which is matter for regret and detracts from the usefulness of the book. Tables of symptoms and classification of syndromes help the reader to systematise his knowledge.

EPIDEMIC ENCEPHALITIS.

L'encéphalite épidémique. By Dr. LOUIS REYS. Paris: A. Maloine et Fils. 1922. Pp. 144.

THIS brochure is a clinical study of 150 cases of epidemic encephalitis which occurred in Strasbourg and in Lower Alsace during the period 1919–21. The writer, as Chef de Laboratoire in the Neurological Clinic of the Faculty of Medicine at Strasbourg, had opportunity for carefully recording the clinical phenomena exhibited by the cases and for tracing the tragic after-effects of the malady; from this aspect his study is a fairly complete and useful one. Like some other French authors, Dr. Reys errs, in our opinion, in an over-elaboration of clinical types. Such complexity of classification tends to bewilder the student, whilst those who have investigated similar epidemics deprecate the exaltation of one particular sign or symptom—which, in varying degree, may be seen in all forms of the disease—into the artificial picture of a type. Vertigo frequently occurs in epidemic encephalitis; it is true that when associated with ataxy it may indicate the involvement of the cerebellum, as the histological work of Marinesco proved in 1918, but we hesitate to believe with Dr. Reys that vertigo with ocular disturbances constitutes an essential labyrinthine form of encephalitis, or that further subdivision may be made into pure and associated varieties. In the clinical after-effects noted in this Alsatian outbreak most of the forms so admirably investigated by Mlle. G. Lévy at the Salpêtrière were observed. Of the cases with post-encephalitic sequelæ, paralysis agitans amounted to 40 per cent. approximately; the majority of cases occurred immediately or within one year after the acute attack.

OCULAR NEUROLOGY.

Manuel de neurologie oculaire. Second edition. By F. DE LAPERSONNE and A. CANTONNET. Paris: Masson et Cie. 1923. Pp. 416. 20*s*.

IN this, the second edition of an extremely useful work, the authors have succeeded in producing a valuable and up-to-date treatise on ocular neurology, which cannot fail to appeal both to the student and to the practitioner. The book is divided as before into two parts. The first deals in an admirably clear and detailed manner with the anatomy and physiology of the nervous mechanism of the eye, with the symptomatology of its various pathological states and with methods of clinical examination. The second part, which has been enlarged and brought up to date, contains an account of the ocular manifestations of various nervous and general diseases. This section would bear still further amplification.

The book strikes us as being primarily suited to the student. The anatomical descriptions are particularly lucid and good, though we venture to disagree with the rather low value (21°) given for the angle between the orbital axis and the mid-line. We should also like to have seen a fuller description of the mechanism of production of the various clinical signs. Of course this must be very largely controversial, but it would add much to the interest of the work if the realms of hypothesis were occasionally entered. For example, the student would be more likely to remember the existence of the Tournay reaction if he were given some idea, even if necessarily purely speculative, of its mechanism. The illustrations are good, with the exception of the two presentations of the fundus oculi, which might with advantage have been replaced by plates from any standard text-book of ophthalmology.

DISEASES OF THE HEART.

Herzkrankheiten. By Privatdozent Dr. P. SCHRUMPF, Assistent am Med-poliklinischen Institut der Universität Berlin. Leipzig: Georg Thieme. 1922. Pp. 200. 4*s*. 7*d*.

THIS book, it is stated, is intended for the student and the general practitioner, and for further information on the subject the reader is referred to the author's larger work "Klinische Herz-diagnostik," 1919. The first two chapters set out anatomy and clinical methods for investigating the heart. The next 15 chapters deal with diseases of the heart, and the final chapter discusses treatment of the various forms of heart disease. The description of methods is meagre, and not sufficiently explicit to be of use to those who would be likely to read such an elementary book. The chapters on diseases of the heart are clear and readable, but require to be supplemented by the use of a larger book. The value of the tracings reproduced, which are drawings of the originals, is diminished by the unfortunate absence of time markings.

On the whole, considering the brevity of the volume, the author has selected wisely.

AUTOBIOGRAPHICAL STUDIES IN MODERN MEDICINE.

Die Medizin der Gegenwart in Selbstdarstellungen. Vols. I. and II. Edited by Prof. L. R. GROTE, Privatdozent at the University of Halle. Leipzig: Felix Meiner. 1923. Vol. I. Pp. 239. 8*s*. Vol. II. Pp. 250. 8*s*.

Prof. Grote's personal contribution to the first volume is limited to an 11-page introduction in which he points out that the history of medicine, like history in general, is the record of its great men. To attempt to sketch the development of medical science as an impersonal thing would be not only to rob it of colour, but also of form. So he has induced six of his most prominent colleagues to give short autobiographical records of the parts they played in developing their respective specialties. After his prologue, the editor retires, and the rest of the book contains the life-histories, with portraits, of Alfred Erich Hoche, Hermann Kümmell, Felix Marchand, Friedrich Martius, Wilhelm Roux, and Robert Wiedersheim. The second volume includes autobiographies of Dietrich Barfurth, Paul Grawitz, Ferdinand Hueppe, Hans Horst Meyer, Franz Penzoldt, F. Julius Rosenbach, Friedrich Schultze, and Hugo Schulz. It is probable that the information thus provided during the life of, and by, the person concerned is more reliable than the average obituary notice which is so often stultified by blind observance of the rule "De mortuis . . . ." But though a biopsy may yield fuller and more accurate information than a necropsy, there are certain difficulties attached to the former method, however anæsthetic the auto-vivisector may be. The six leaders of the medical profession who have turned their insides out for the benefit of their colleagues are to be congratulated on the conscientiousness and skill with which they have performed their allotted task. To be at once truthful and modest in such a matter must be very difficult indeed.

THE LANCET.

LONDON: SATURDAY, JULY 21, 1923.

RESEARCH IN MENTAL DISEASE.

THE Medico-Psychological Association of Great Britain and Ireland completed last week in London its eighty-second annual meeting. The atmosphere of the meeting was one of expectancy; at the annual banquet Lord ONSLOW expressed his belief that the Mental Treatment Bill would become law before the end of the year, when the Statute-book would no longer recognise the term "lunatic asylum." Sir ERIC GEDDES, speaking impressively on the same theme, was sure that the use of the term "mental hospital" would greatly benefit the attainment of the objects of the Association. He alluded to the vast field for research, for investigation, for treatment, and for cure, now open to the mental hospitals if adequately supported; if the case were put before the public clearly and definitely the response, he said, would be overwhelming. Every alienist knows that research must come first and provision has actually been made for research in the Bill. Dr. EDWIN GOODALL'S presidential address to the Association was largely taken up with an inquiry into the rôle played by toxic bodily conditions in disorders of the mind; and Dr. HENRY COTTON, lecturer in psychopathology at Princeton University, made a very convincing statement of his own experience in regard to chronic sepsis. Five years given up to the study of endocrine disturbance and gland therapy in functional mental order had led him to no decisive result, but eradication of chronic sepsis had been rewarded by an immediate increase in the recovery rate of his patients from 37 to 85 per cent., so that he had come to regard disease of the brain tissue as the fundamental condition, and psychogenic factors as precipitative rather than causative of psychosis. Other notable contributions at this meeting were Dr. C. LOVELL'S discovery in anxiety cases of increased nucleation of the interlobular connective tissue of the pancreas, an observation by Sir FREDERICK MOTT and Dr. IDA ROBERTSON of complete atrophy of the cellular elements of the pituitary body in dementia præcox, and Dr. J. WALKER'S demonstration of vagotonia in the same condition.

Already a number of mental hospitals have appointed an additional medical officer, whose time will be devoted chiefly or wholly to pathological investigations. There are a few examples, among which Cardiff City Mental Hospital is perhaps the most noteworthy, of institutions possessing extensive laboratories and a comparatively large staff of investigators. In a large hospital, especially in one connected with a university, such a development of this side of the work is eminently desirable and feasible. It is impossible, however, for work of this nature and extent to be undertaken in every mental hospital in the country; routine work of a simple nature can be undertaken with advantage, but more difficult work must often be sent elsewhere, and deliberate research will demand facilities which are available only in specially equipped laboratories. These considerations have led to the establishment of central laboratories designed to serve a group of mental hospitals. An example of such work is afforded in the thirteenth annual report of the Scottish Western Asylums' Research Institute. Much of the work done during the year has been of a routine nature, and medical officers from the asylums interested have attended the institute in order to acquire a knowledge of laboratory technique. At the same time several lines of research have been followed—mainly of a chemical nature, including an investigation of the blood-sugar content in emotional states, and determination of the basal metabolic rate in dementia præcox. In some cases where the underlying cause appeared to be infective, autogenous vaccines have been prepared, and an attempt was made to influence conditions apparently due to intestinal auto-intoxication by administering milk soured by the *Bacillus acidophilus*. This interesting experiment yielded improvement in general health, although no effect was observed on the mental condition of the patients.

A similar venture on a somewhat larger scale is represented by the Birmingham Pathological Laboratories at Hollymoor Mental Hospital, which have been established by the Joint Board of Research for Mental Disease, and were opened at a meeting held on June 16th, attended by the Minister of Health. These laboratories, which are under the direction of Sir FREDERICK MOTT, are equipped for all varieties of work, and for purposes of routine investigation are intended to serve the mental hospitals of the Midlands. Mental hospitals are invited to coöperate, either by making an annual contribution or by sending material for examination at charges to be fixed by arrangement. At present there are, unfortunately, legal restrictions which prevent the authorities of mental hospitals from contributing adequately to such a scheme as this, and the Birmingham laboratories are dependent in part on funds which have been raised privately. The present arrangements are regarded as only a beginning, and it is probable that the department will be transferred later to the Birmingham University Laboratories, where the work will be in direct association with the general pathological work of the University.

THE INTERNATIONAL CONGRESS OF SURGERY.

THE International Society of Surgery has just concluded in London its Sixth Triennial Congress. We are able to print this week a report of the inaugural session at which the delegates were officially welcomed and Sir WILLIAM MACEWEN delivered a presidential address, and of the first scientific session which was devoted to reports and discussion on the surgery of endocrine glands. We have had among us a body of men whose names are household words in their profession. Twenty-four countries, ranging from Roumania and Poland to Chili and Peru, have sent their greatest surgeons to tell us of their discoveries, to inspire us with their own enthusiasm, and to stimulate us to emulation. In the amazing progress which surgery has made in the last 30 years Britain has taken her full share, and the sons of HUNTER and of LISTER are not unworthy of their great ancestry. But just because British surgeons have striven to keep in the van, they are the better able to appreciate the great men of other countries who have fought so hard to wring from Nature the secrets of their art, and they are the more eager to applaud the victories they have won. Towering above them all in age and experience, the very Nestor

of surgery, is WILLIAM KEEN. Eighty-six years of life and 64 of surgery have still left him young, and it is difficult to realise that he was a pioneer in America when LISTER was still feeling his way towards antisepsis, and when abdominal surgery was a distant dream. WILLIAM MAYO, of Rochester, the head, with his brother, of the greatest surgical organisation in the world, brings with him DONALD BALFOUR, one of his ablest captains. From its vast resources the Mayo Clinic provides a formidable proportion of the surgical literature of the world, and we owe no small part of modern abdominal surgery to its leaders. Representing American orthopædics we have EDVILLE G. ABBOTT, who has done so much to improve the treatment of spinal curvature. CHARLES H. FRAZIER represents neurology, and to him we owe many ingenious methods for dealing with the difficult problems presented by the gasserian ganglion and pituitary tumours. GEORGE CRILE has come to teach us how to operate by stealth, so that even the subconscious nervous system of the patient may not be injured by the operation which he cannot feel. From Canada we welcome FREDERICK G. BANTING, whose discovery of insulin has revolutionised the treatment of diabetes and given a powerful stimulus to the study of the endocrine glands. France has always been famous for her surgeons, and her list includes many familiar names. THEODORE TUFFIER calls to mind brilliant advances in thoracic surgery, A. GOSSET and RENÉ LERICHE in the surgery of the peripheral nervous system. HENRI HARTMANN in gynæcology and LOUIS BAZY in the urinary tract are masters, whilst to DE MARTEL we owe a whole range of ingenious instruments which he applies with exquisite skill in the surgery of the brain. Belgium sends us CHARLES WILLEMS, whose daring methods of treating war infections of the knee by mobilisation revolutionised our outlook on the surgery of septic joints, and ALBIN LAMBOTTE, one of the pioneers in the surgery of the bones and in the operative treatment of fractures. Prof. V. PUTTI, from the famous school of Bologna, has shown us how to obtain from amputation stumps movements never before thought possible. From Berne, made famous by THEODOR KOCHER, comes FRITZ DE QUERVAIN, to whom we owe a brilliant book on surgical diagnosis, and who is one of the greatest living authorities on endemic goitre. A few names chosen at random from a long list can give little idea of the brilliant intellects who have met at the Congress. Still less can a few short sentences give any adequate conception of the treasures which years of labour have enabled these men and their colleagues to hand down as a priceless possession to posterity. The surgeons of Britain are indeed proud to welcome a body of men, every one of whom has added lustre to a great profession, and the people of Britain will rejoice that through the lips of our own Prince Ambassador they were able to pay homage to those whose devoted labours have won such blessings for humanity.

THE SPAHLINGER TREATMENT.

THE paper on the Spahlinger vaccine by Dr. E. H. COLBECK and Dr. S. ROODHOUSE GLOYNE, and the letters on the same subject published in this issue of THE LANCET add a good deal, but not as much as we want, to our knowledge of this subject. We are told of the results, immediate and late, of this treatment in a considerable number of cases, and we are left by Dr. COLBECK and Dr. GLOYNE to draw our own conclusions. In withholding the panegyric with which new remedies are usually ushered into the world, they have acted with wisdom as well as with restraint, and have proved themselves conversant with the history of therapeutics. The usual record of a new remedy may be illustrated as a tracing—a sharp rise, a culmination of brief duration, and a slow decline ending either at a low level or, sad to say, in the base line of oblivion. This last is the fate of many remedies, as we all know. Yet the incorrigible optimism of man is doubtless an asset to the race, and the indiscriminate scepticism of the senior medical student towards the youthful therapeutic enthusiasms of his teachers is sometimes ill-founded. We may then do well to scrutinise the evidence supporting the Spahlinger case before we discard it as unproven. A perusal of the cases hitherto published brings out one very important point. They were, as a rule, advanced cases, and in many the disease was active as well as advanced. To undertake the cure of an early case of tuberculosis is often like rushing to the aid of the victor; it is not infrequently a work of supererogation. During the recent tuberculin revival, "cures" were effected in persons whose only sign of tuberculosis was a positive tuberculin reaction. If, and we would emphasise this *if*, the Spahlinger treatment is uniformly and permanently beneficial in febrile cases with signs of advanced pulmonary disease, then the viability of this treatment is assured. But, considering how erratic the course of even advanced and febrile pulmonary tuberculosis may be, we must have many more records than we possess at present of the results of this treatment; the *ex uno disce omnes* principle must be reversed. Another point is concerned with the experimental evidence in the case. Is it supported by controlled guinea-pig and other animal tests? More human beings recover from, than die of, infection with the tubercle bacillus, and man is therefore for this, as well as other reasons, an unsuitable test subject. But the guinea-pig experimentally infected by the tubercle bacillus almost invariably dies in a few months. Has the tuberculous guinea-pig been cured by the Spahlinger preparations?

The problems of tuberculosis being already singularly intricate and confused, it is a pity that, so far as the Spahlinger treatment is concerned, confusion has been worse confounded by the secretiveness which has marked its production and its methods for distribution. Had Mr. SPAHLINGER published his researches from time to time, they could have been checked by other workers, and much valuable time would possibly have been saved. At present we do not even know whether the composition of the vaccines and serums now trickling out in a fitful stream from the Spahlinger laboratory is that of the vaccines and serums which were, apparently, very effective in 1914. We are given highly laudatory reports from physicians who have visited Mr. SPAHLINGER in Switzerland, but all these visitors were not expert pathologists, serologists, and bacteriologists. Even if they had been thus qualified, how could they judge of the value of a remedy, the manufacturing processes of which were jealously guarded? These visits of inspection were little short of farcical what time the actual methods of production were kept secret. The physicians who have returned from their tour of inspection with the docile fervour of a religious pilgrim have, of course, acted with perfect honesty, and who shall blame them for that faith which accepts as gospel "the evidence of things unseen"? But those of us to whom this kind of faith is denied will suspend judgment until such time as sufficient of the remedy has been submitted to one or other of the research institutes which have made no secret of their willingness to supervise a valid test.

Annotations.

"Ne quid nimis."

MEDICAL EXAMINATIONS FOR MOTOR DRIVERS.

COMPLICATIONS which may arise from the new legislation as to medical examinations for motor drivers and set out in our Paris letter, June 30th, are well discussed in a recent number of *Le Scalpel* (vol. lxxvi., p. 289). What, for example, is the physician to do who is consulted by an epileptic chauffeur? If the chauffeur insists on continuing his employment, the physician is faced with the disagreeable alternatives of warning the chauffeur's employer or being held responsible for some fatal accident at a later date. The problem is almost as delicate as that which often arises in connexion with venereal disease, and it raises the question of compulsory health certificates for motor drivers. Among the proposals recently made to the Academy of Medicine in Paris it was suggested that no such licence should be given to anyone under the age of 21, that chauffeurs suffering from faulty vision or hearing should be subjected to a medical examination by a specialist every year, and that no licence should be given to anyone without a medical examination at which the heart, the arterial pressure, and the functions of equilibrium and coördination have been found to be in good order. The first of these three requirements seems to be over-shooting the mark; many fools remain reckless all their lives, and many persons are level-headed while still in their teens. But the other two conditions are worthy of serious consideration; after a recent accident it transpired that the owner-driver of a car was totally deaf, being accompanied on that occasion by his wife, who was also deaf, and it would be well if such diseases as epilepsy, chronic alcoholism, and addiction to drugs were made disqualifications for driving licences. The objection may be raised that even if medical examinations were enforced as a step to qualifying for a driving licence, diseases such as addiction to drugs could easily be concealed, and the true facts of the case might not be revealed till an inquest was held on the driver's victim. But even if the mesh of the medical examiner's net were to prove too coarse for certain slim applicants for driving licences, it would yet serve a useful purpose in discouraging some of the least physically fit from applying for a licence. It would, of course, be possible by a medical examination to give only a partial guarantee of physical and mental fitness; a driver may be physically and mentally fit enough to amble at ten miles an hour through a deserted country lane, whereas he may break down in congested traffic. At an inquest recently commented on in a leading article in the *Manchester Guardian*, the driver's excuse for the accident was, "I completely lost my head." As pointed out in the journal, the driver would probably have been able to pass any likely official test in the week before the accident. It is evident, therefore, that no tests, medical or other, can guarantee a fool-proof state of affairs, but it would be well if efficiency tests for motor driving were made as searching and stringent as possible.

PUERPERAL MORBIDITY.

Dr. Eula Eno,[1] of Des Moines, Iowa, has made a study of puerperal morbidity based on the records of about 7000 cases equally distributed between intern and extern practice at the Woman's Medical College of Pennsylvania during the period from 1906–1921. The English standard of morbidity was chosen according to which any puerperal case is regarded as morbid in which there is a rise of temperature to 100° F. for three successive days or longer. In the total of 3500 intern patients there were 300 cases of puerperal morbidity, or 8·6 per cent., with 10 deaths; 202 were primiparæ and 98 multiparæ—a percentage incidence of 11·5 and 5·6 respectively—so that puerperal morbidity is twice as common among primiparæ. In the extern practice there were 71 cases of morbidity, or 2·0 per cent., with no deaths; 23, or 3·2 per cent., were primiparæ, and 48, or 1·7 per cent., multiparæ. A study of the morbidity during each of the five-year periods shows a progressive fall in the incidence, the percentage in the intern practice being 11·3 in the first period, 9·7 in the second, and 7·5 in the third, while in the extern practice the incidence fell from 2·16 per cent. in the first period to 1·6 per cent. in the third. There was a definite increase in morbidity in non-operative cases in primiparæ as compared with multiparæ, which was probably due to the influence of protracted labour and repeated vaginal examinations. Gonorrhœa played a considerable part in the causation of morbidity, as there was either bacteriological or definite clinical evidence of that disease as an ætiological factor in puerperal morbidity in 36 per cent. of primiparæ and in 20 per cent. of multiparæ. In a large class ranging from 33 to 75 per cent. of the total patients, in which the symptoms were very mild, no definite ætiological factor could be found. There was a definite drop in the incidence of post-operative morbidity, but it was less than that of non-operative morbidity. The operative procedures succeeded by morbidity were as follows in decreasing order of frequency: intra-uterine douche, version and extraction with craniotomy, manual removal of placenta following some other procedure, insertion of bag following some other procedure, Cæsarean section, version and extraction, high forceps, mid forceps, breech extraction, low forceps, manual removal of placenta, insertion of bag, the sequence being practically the same in intern and extern practice.

[1] Surgery, Gynecology, and Obstetrics, June, 1923.

A MEDICAL GATHERING AT THE SOUTH LONDON HOSPITAL.

PLEASURE before business was an excellent hot weather rule at a meeting of the London Association of the Medical Women's Federation which was held at the South London Hospital for Women on July 10th. Refreshed by a strawberry tea in the hospital gardens at 4.30, nearly all the guests willingly undertook a climb to the roof preliminary to inspecting the hospital under the guidance of Miss M. M. Chadburn, its senior surgeon. It will be remembered that the hospital was founded and incorporated in 1912 to make further provision for medical treatment of women by members of their own sex; to provide, in addition to ordinary hospital accommodation, private wards for women of limited means at low inclusive fees; and to afford further scope for post-graduate training for medical women. The hospital overlooks Clapham Common, and is equipped not only with what have come to be considered the essentials of a modern hospital, but with those amenities which do much to minimise the differences between hospital and home. For example, the lack of some privacy in hospitals is a source of dismay both to probationers and to new patients, though it may be admitted that both classes of inmates soon get accustomed to living in close community with their fellows. At the South London Hospital, however, there are not only separate bedrooms for nurses but cubicles for wardmaids, while besides big wards single rooms are provided for patients at 6 guineas a week each, double rooms at 4 guineas, and cubicles at 5 guineas. The ancillary departments—X ray, electrical, dispensing, and pathological—are well disposed, the last-named block being especially light and airy. Practically all the wards have large balconies which are specially appreciated in the treatment of children. The admirably appointed kitchens and the boiler room with duplicate plant were open for inspection. As to clinical work, operations were being performed in the theatre by Miss E. Davies-Colley, and before the

business meeting which concluded the programme some interesting cases were shown. These included cases under insulin treatment, shown by Dr. M. G. Thackrah, and a case of splenic enlargement for diagnosis, by Dr. A. M. Hutchison; a case of ovarian tumour simulating pregnancy by Dr. Frances Huxley; triplets, all with congenital hearts, by Dr. Helen Ingleby; and a case of mental deficiency with catatonia in small child by Dr. E. M. Pickard. Miss E. C. Lewis showed specimens of double ureter attached to a kidney with partial hydronephrosis, ureteric calculi, and pyelograms, while Dr. Hilda Whittingham had on view interesting slides of tumours of doubtful malignancy. These absorbing side-shows, while leading to much valuable discussion, were not allowed to detract from the holiday atmosphere of an afternoon almost in the country, for though easily accessible from central London the hospital appears to be surrounded by much open space. Altogether it was a most cheerful function. Dr. Louisa Martindale, supported by Lady Briscoe and Dr. Amy Sheppard, expressed the thanks of the Association to the medical and nursing staff for their hospitality, and more than one guest was heard to hope that the opening of the new surgical block, now in process of construction, would give occasion for another medical garden party at the South London Hospital for Women.

IS REINFECTION OF TUBERCULOSIS FROM WITHIN OR FROM WITHOUT?

COULD this question be definitely answered, one way or the other, the problems of tuberculosis, notably those concerned with prophylaxis, would be greatly simplified. If the Andvord-Römer hypothesis is correct, and the active pulmonary tuberculosis of adult life is merely the final stage of a long and consecutive train of events beginning with infection in childhood, the adult who gives a positive tuberculin reaction has little to fear from contact with sputum-positive cases of tuberculosis. To most rules there are exceptions, and in his latest communication Dr. K. Andvord has clearly pointed out that he does not regard the risk of exogenous infection among adults as perfectly negligible. Dr. Braeuning,[1] of Stettin, seems, however, to have come to the conclusion that exogenous reinfection is not merely of occasional, but of common occurrence. His opinions are founded on statistical observations which, though open to criticism from several points, are exceptionally interesting and instructive. Several lines of research were followed. First he took stock of the 244 families in Stettin, in each of which there was a case of open tuberculosis notified in 1919. There were 1077 persons in these families—i.e., there were 833 contacts. What, he asked, was the incidence of open tuberculosis among these contacts during 1919, 1920, and 1921 as compared with that of the whole population of Stettin? The answer was illuminating. Among the contacts there were 27 new cases of open tuberculosis in the three years under discussion—i.e. 32·4 per thousand. In the same period in the general population this ratio was only 5·4 per thousand. In other words, the incidence of new cases of open tuberculosis among the contacts was between five and six times as high as in the general population. Dr. Braeuning discusses various sources of error in his comparison, and he notes that as these errors did not operate only on one side, they tended to neutralise each other, and were in any case negligible in view of the striking differences in the two tuberculosis rates. He has, however, omitted to mention one important factor or possibility which might bring the Andvord-Römer hypothesis in line with his own findings. The 27 persons who developed open tuberculosis within a few years of the notification of an earlier case in the same house may have been exposed to the same infection many years earlier—in childhood. If, for example, a man, aged 25, develops pulmonary tuberculosis in 1919, and his sister, aged 23, develops the disease in 1920, and it transpires that their mother died of pulmonary tuberculosis when they were still infants, who shall say that the sister contracted the disease from her brother in 1919 and not from her mother two decades or more earlier?

Dr. Braeuning was not, however, satisfied with only one line of research. He grouped his contacts in four classes, according as the hygienic conditions under which they lived were good, bad, or somewhere between these extremes. There were 218 persons living under good conditions, save that they were in contact with a case of open pulmonary tuberculosis. Only 1·3 per cent. of these contacts developed open tuberculosis in the period 1919–21. But of the 122 contacts living under the most unhygienic conditions, as great a proportion as 4·9 per cent. developed open tuberculosis in the same period. At a casual glance these figures certainly suggest that particularly favourable opportunities for exogenous reinfection explain the marked differences in the number of new cases of tuberculosis in the two classes. But the matter is not really so simple. For contacts living in poverty, dirt, and squalor are subject to many noxious influences besides that of massive infection, and these other influences cannot be dismissed as negligible. The contact living in hygienic surroundings is probably receiving better pay, is less overworked and underfed than his fellow-contact in a slum. And, it may be argued, he is comparatively immune, not because infection is less massive in a clean than in a dirty home, but because his opportunities for maintaining acquired immunity are comparatively great. A third line of research open to the same criticism as the first was an inquiry by Dr. Braeuning of 100 patients suffering from open tuberculosis as to their having been in contact with cases of pulmonary tuberculosis shortly before their own disease developed. The same question was addressed to 100 non-tuberculous patients. A history of exposure to infection was obtained between two and three times as often (2·7 to be exact) in the first as in the second class. Dr. Braeuning argues that all his lines of research converge on one point; exogenous re-infection of tuberculosis is very common. It may be. But valuable as Dr. Braeuning's researches are, it cannot be claimed that they are the last word in this matter and a complete answer to the heading of this annotation.

[1] Beitr. z. Klin. d. Tuberk., 1923, Bd. lv., Hft. 2.

A TRIBUTE TO THE MAYO CLINIC.

AT a Congregation of Leeds University, held on July 13th in the School of Medicine, the honorary degree of Doctor of Science was conferred by Sir Michael Sadler upon Dr. W. J. Mayo of Rochester, Minnesota. In presenting Dr. Mayo, the Dean of the Faculty of Medicine, Prof. J. K. Jamieson, spoke as follows:—

The remarkable institution called the Mayo Clinic in Rochester, U.S.A., emanates from the brains of the Mayo family, father and sons. Even were it permissible to describe it in a degree oration, that could not be done in the Latin or English forms in use in our universities; it would require the happy amœbic pseudopodia of ancient Greek or the still developing collateral anastomoses of the American language to give a true idea of the development of the institution.

It stands now as a colossal monument of organising ability founded on the sure rock of tireless work carried on with faith and enthusiasm. It is a notable illustration of what may be done by devoted coöperation. As there is nothing new under the sun one desires to seek its prototype in history. If there be a prototype it is in the Temple of Æsculapius at Kos. We do not know that this ever contained more than the spirit of a genius, and the Mayo Clinic fortunately possesses the body as well; but imagination allows us to draw a picture illustrating the resemblance. Were some catastrophe to dismember civilisation it is quite possible that Rochester would become the second Kos. Therein we might find the buildings tenanted by priests clad in white vestments and masks performing a ritual reminiscent of the surgery of the early twentieth century, and receiving from the faithful tithes of the flocks and herds and corn and oil, and—may we say—wine.

The creation and development of an organism which is a fountain of progress in surgery flowing all over the world is surely good reason for our desire to honour its Director;

but here in this room we are not the whole Congregation. We are surrounded by the faces of the unforgotten dead who require of us that we accord no honour to success unless that success has been attained with due regard to certain ancient principles which are still the glory of the profession.

I will therefore say—firstly, that every new fact uncovered and every new idea conceived in Rochester has been freely and promptly communicated to the profession, and the whole surgical world have been free students of the Mayo Clinic; secondly, that the inheritance of an ancient obligation has been faithfully accepted and the afflicted poor have a generous share in the benefits of the institution; thirdly, that success and praise have in no way misguided the workers in their quest for perfection. Emerson has said that if a man can do something, even the making of a mouse-trap, better than anyone else, no matter where he hides himself, the world will make a beaten path to his door. Mayo has proved this true, but those who know him know that no one is more likely to slip into the Surgeons' Valhalla murmuring apologies for the quality of *his* mouse-trap; and lastly, that the work of this notable family has contributed substantially to the diminution of that terror of the knife which has hitherto added so much to the distress of afflicted humanity.

Therefore, Prof. Jamieson concluded, it is not only as the promoter of a colossal enterprise and as a distinguished figure in surgical research, but as a true man, modest, charitable, and humane, that in the name of this Congregation I present to you William James Mayo for the Degree of Doctor of Science.

THE BEIT MEMORIAL FELLOWSHIPS.

AT a recent meeting of the trustees of the Beit Memorial Fellowships for Medical Research, Sir James K. Fowler, the honorary secretary, presented a review of the fellowships from their beginning in 1910 to 1923. During that period, said Sir James Fowler, 79 fellowships had been awarded; but for the war this number would have been considerably greater. In 1914 nearly the whole body of Fellows resigned in order to join one or other of the public Services; all of these who so desired were ultimately reinstated, but during the war years very few appointments were made. The value of the fellowships, originally £250 per annum, was in 1919 increased to £300, and in 1920 to £400; in 1922 they were classified as junior fellowships (value £350 per annum), fourth-year fellowships (£400), and senior fellowships (£600). The main object of this classification was to remove, as far as possible, the objection that the fellowships opened up no career to those possessed of the spirit of research and likely to become qualified for the highest positions in teaching and research work. It was now possible for candidates to see seven years ahead—three as a junior fellow, one as a fourth-year fellow, and three as a senior fellow. The income of the trust for the last financial year was about £11,500. In April, 1922, a report on the after-careers of the first 50 Fellows showed that two had gained fellowships of the Royal Society, four had become directors of research institutes, eight were professors, eight university lecturers, three were hospital physicians in charge of special and research departments, one was on a scientific research expedition. One only was engaged in medical practice. Four women Fellows had married, and most of the others were holding responsible appointments or pursuing independent research. Of the 29 Fellows since elected, 16 still hold fellowships. After the report had been received, the trustees proceeded to the election of Fellows. The number of candidates was 36, the largest since the first election. The following are the names of the elected candidates, with an indication of the direction of research or proposed research:—Senior Fellowship: Dr. David Keilin, life-history of parasitic protista and physiology of parasitic metazoa. Fourth-year Fellowship: Miss Katherine H. Coward, D.Sc., investigation into processes of metabolism, nutrition, and growth of young animals, particularly with references to deficiency diseases. Junior Fellowships (ten were awarded instead of six as stated in the advertisements, on account of the high qualifications of candidates): Dr. J. M. H. Campbell (1) oxygen consumption and pulmonary ventilation during and after work in chronic heart and lung disease, and total metabolism and "efficiency" of work in these and other diseased conditions; (2) changes in capillary circulation in the skin in dermographia, urticaria, angioneurotic œdema, and certain chronic nervous diseases. Dr. C. G. Lambie, influence of insulin upon fat and protein metabolism. Mr. W. K. Slater, M.Sc., (1) completion of work on a correction of the value for the heat of combustion of glycogen, (2) determination of the molecular weight of glycogen, (3) partial supervision in the initial chemical work in the extraction of insulin, (4) investigation of cell mechanism under anaerobic conditions. Dr. Dorothy S. Russell, the relation of renal efficiency tests to the morbid anatomy and histology of kidneys. Mr. C. P. Stewart, M.Sc., (1) investigation of methods of isolation and chemical constitution of thyroxin, (2) continuation of research on liver perfusion of substances related to histidine. Mr. H. J. Channon, B.Sc., study of certain fundamental dietary factors in the nutrition of living organisms. Mr. William Smith, B.A., and Mr. Lewis B. Winter, B.S., investigations on general metabolism in health and disease, with special reference to metabolism of carbohydrates and the cause of diabetes. Miss D. B. Steabben, B.Sc., investigation of mechanism of response to injection of colloidal substances. Mr. C. S. Hicks, M.Sc., (1) investigation of the causation of goitre from a biochemical standpoint, (2) chemistry and pharmacology of substituents in the thyroxin molecule.

BRONCHIAL ASTHMA DUE TO MICE.

Dr. William Lintz,[1] clinical professor of medicine in the Long Island College Hospital, remarks that while emanations from all sorts of animals have been known to cause attacks of bronchial asthma, there is no case on record in which emanations from rats or mice have been the cause of such an attack. The following case which recently came under his observation is therefore the first example of mice being the cause of bronchial asthma. The patient was a married woman, aged 36, who had been suffering for the last seven years from typical attacks of bronchial asthma which occurred four or five times a month, mostly at night, only occasionally in the day-time, and chiefly from December to March. The attacks did not appear to bear any relation to food, weather, or the emanations from the cat, horse, or dog. All laboratory examinations and cutaneous allergic tests proved negative. No cause could be detected for the attacks, which were relieved by injection of adrenalin, until Dr. Lintz in examining the patient's premises was struck by the number of mouse-traps scattered about the house and learnt that the place was infested by rats and mice. It then occurred to him that the asthmatic attacks might be due to mice for the following reasons: (1) The attacks occurred from December to March, when the mice had left the fields for food and warmth in the house. (2) They usually took place at night, when the mice were running about the house. (3) When the patient stayed at her mother's house, a short distance away, in which there were no rodents, she was free from the attacks, which recurred as soon as she returned home and lay down in her bedroom. The correctness of the hypothesis was confirmed by exposing the patient to the emanations of a mouse without her knowledge, so as to exclude all psychical influence by placing the animal in a covered box and asking her to smell it at a time when she was perfectly free from asthma. Three minutes later she had a typical asthmatic attack associated with intense dermatitis. A very energetic campaign against the rodents in the house was then undertaken, and after removal of a few dead rats from beneath the patient's bedroom floor she remained free for three years from all attacks. The case proves, as Dr. Lintz remarks, that cases of bronchial asthma are pieces of research work, and often require a knowledge of the patient's environment before the problem can be solved.

[1] New York Medical Jour. and Medical Record, June 20th, 1923.

ON SMALL-POX DIAGNOSIS.

THE recent spell of tropical weather, which lasted continuously for nearly a fortnight, has synchronised with some remarkable cases of chicken-pox, of such a nature that further notes may be helpful to those faced with similar cases should the hot weather recur. The striking feature of these cases of chicken-pox has been the profuseness of the rash upon certain sunburnt surfaces such as the forearm and neck; and also the extreme severity of the rash, so that the secondary fever has reached a temperature of 103° F. in one and 104° in another of the cases. It seems that it is the flushed, sweaty, and irritated condition of the skin which has led to some of these severe rashes. They form good illustrations of the value of attaching due weight to all the evidence. One of these cases may be quoted:—

H. B., male, aged 14, was covered from head to foot with a most copious rash, the total number of his spots amounting to probably at least 1500. An approximate count of his spots showed as follows: Right hand, palm 5 faint spots, back of hand 50 to 70, right forearm 100 to 150, right arm 150 to 200. Left hand, palm 3 faint spots, back of hand 40 to 60, left forearm 60 to 80, left arm 100 to 140. Face 200 to 300, front of chest and abdomen 400 to 500. In the left armpit were 20 to 30 spots and in the right armpit 15 to 25; on the sole of the right foot about 10 to 20 spots, left sole 8 to 12 spots. A temperature of 104° F. was reached during the suppuration of the pocks. It was noteworthy also that at the onset, but for the occurrence of the spots, neither the patient nor his mother would have noticed any illness in him at all. The lesions, notably on the trunk, were superficial with crenate outline, irregularly oval, the long axis running parallel to the natural folds of the skin; in fact many of them individually were precisely typical of chicken-pox, the only unusual feature being their extreme abundance. They had matured at a much more rapid rate than would have been possible in variola. The boy had been vaccinated in infancy and showed four plain scars. There had been chicken-pox among some vaccinated children in the house. Another striking case was that which occurred in two children who recently had been spending a holiday at the seaside and whose legs had been so scorched by the sun that there was mild acute sunburn. The rash of chicken-pox had picked out these children's irritated surfaces in a very remarkable degree; here again the diagnosis was rendered perfectly clear by the concomitant signs. In yet another case the neck and upper part of the back had been remarkably picked out by the rash of chicken-pox, owing presumably to that area having been partly sun-scorched and partly chafed due to the clothes bearing on a perspiring surface.

While the rash of both small-pox and, to a less degree, of chicken-pox favours irritated surfaces, a more intense degree of hyperæmia may be required in chicken-pox than in small-pox to bring out this peculiar phenomenon. The suggestion is worth following up should the heat continue.

By the courtesy of the Ministry of Health and with the permission of the patient we reproduce herewith a photograph of Mrs. A. and baby taken at Gloucester on June 26th and showing the characteristic eruption of small-pox with its well-marked centrifugal distribution on face and arms. Mrs. A., aged 26, was notified as suffering from small-pox on June 15th and admitted to hospital on the same day. The onset of prodromal symptoms was on June 9th with headache, vomiting, and pains all over; the rash appeared on June 12th, profuse and coherent on face, arms, and legs, giving rise for four days to a secondary temperature of 100°–101° F. Desquamation was practically complete on July 16th. At the time of admission to hospital Mrs. A. was nursing a baby who accompanied her. The baby was successfully vaccinated in four places on the arm on June 16th and has remained free from infection. Mrs. A. continued to nurse the baby during her illness.

A Case of "Mild Small-pox" as at Present Prevalent in Gloucestershire.

Photo by H. C. Leat, Gloucester.

HELP IN THE SEARCH FOR REFERENCES.

THE time and physical energy wasted in the search for references by anyone engaged in the pursuit of scientific investigations disheartens on occasion the most zealous worker. If he neglects even one possible source of information, which may be specially difficult of access, he may be punished by finding just before or even after publication that his research

does no more than repeat experiments and confirm results already amply established, perhaps by workers in Hong-Kong, Christiania, or some South American republic, and printed in full in the native language of the investigator. Most scientific libraries have reliable indices whereby the titles of relevant papers may be found, but the periodical itself may not be among those taken in at the library, and the librarian may be at a loss to suggest where it may be inspected. To fill this need Prof. R. T. Leiper, F.R.S., some time ago suggested to the British Medical Association the production of an index or guide to the libraries in which the very numerous scientific periodicals can be found, and he has now, with the collaboration of Mrs. H. M. Williams and Miss G. Z. L. Le Bas, M.Sc., prepared such an index. The list prepared by Prof. Leiper and his colleagues serves to indicate where much of the periodical literature of medicine and the allied sciences may be consulted, not only in London, but also in Cambridge, Oxford, Edinburgh, Glasgow, Liverpool, and Manchester, and has been compiled from library catalogues and from lists made personally by the compilers. It reveals the important fact that the National Library in the British Museum contains also the most extensive and representative series of foreign medical and scientific periodicals in Britain. The book is being published this week at the price of 10*s.* 6*d.*, and will be obtainable through any bookseller, or at the offices of the British Medical Association, 429, Strand, London, W.C. 2.

THE RELIEF OF LEPROSY IN THE BRITISH EMPIRE.

ON July 12th, at a meeting held in the India Office under the chairmanship of Lord Chelmsford, it was decided to form a British Empire Leprosy Relief Association. Despite the imperfect statistics available in this connexion, the British Empire is acknowledged to contain more known lepers than any other political unit, but far less is done for these sufferers, in proportion to their numbers, within the Imperial boundaries than in the United States. Less than 5 per cent. of British-governed lepers are now cared for in any way, and of that percentage only a small proportion are receiving the latest form of treatment —a fact mainly due to the poverty of India, tropical Africa, and the West Indies, the countries most affected. The present situation in India is briefly indicated in another column in connexion with the work of the Mission to Lepers.[1] An influential general committee, and a strong executive committee, with subcommittees, were appointed to draw up plans for action by the association, whose establishment and promised activity will be a source of great satisfaction to all who realise the extent of the leper problem in the Empire, and the hope given by recent advances in the treatment of the disease.

ANNUAL MEETING OF THE B.M.A.

THE annual meeting of the British Medical Association opens to-day, Friday, July 20th, at Portsmouth, when Sir William Macewen, the President, will vacate office in favour of the President-Elect, Mr. C. P. Childe, senior surgeon to the Royal Portsmouth Hospital. The time chart of the meeting follows precedent in that the opening and three following week days will be taken up by the annual Representative Meeting, while the Scientific Sections will meet on Wednesday, Thursday, and Friday, July 25th, 26th, and 27th. The annual dinner of the Association will take place at the City Town Hall on July 26th. The exhibition of surgical appliances, foods, drugs, and books will be open during next week, the closing day of which—viz., Saturday, July 28th—has been set apart for excursions to places of interest in the neighbourhood. The hon. local general secretary is Mr. C. A. Scott Ridout, of St. Emo, Clarendon-road, Southsea.

[1] See p. 153.

THE house and library of the Royal Society of Medicine will be closed for cleaning and repairs during the whole of August.

Sir Napier Burnett's fourth annual report on the Voluntary Hospitals in Great Britain (excluding London) has just been issued. In an introductory note Sir Arthur Stanley calls attention to the wonderful improvement in financial position shown by these hospitals in 1922, when the ordinary income of 666 hospitals only fell short of ordinary expenditure by £75,000. "Mass contribution" has been successfully called in to redress the balance of the old individual donor who has dropped out. The curious fact is revealed that out of a total of 5179 beds in "cottage hospitals" 2000 were vacant during 1922. Mention is made of increasing laboratory accommodation in hospitals throughout the country and of the establishment by the Red Cross Joint Council of a central bureau of information on hospital matters.

ROYAL MEDICAL BENEVOLENT FUND.

AT the meeting of the Committee on July 3rd 25 cases were considered and £262 voted to 17 applicants. The following is a summary of some of the cases relieved:—

Daughters, aged 51 and 46, of M.D. St. Andrews who practised in Hampshire and died in 1878. Through the death of a brother, whose pension ceased at his death, these ladies are in somewhat straitened circumstances, having had to find the money for the brother's funeral. After his estate is cleared up they do not expect their income to exceed £30 per annum each. The elder sister received £30 from sewing, and the younger £20 as a journalist. The rent amounts to £1 per week. Voted £20.

Daughter, aged 54, of M.R.C.S. Eng. who practised at Mold and died in 1871. Applicant was a school nurse, but since May, 1922, she had pneumonia, and has not been able to carry on her work and is now suffering from degeneration of the cerebellum. Her brother will allow her 5*s.* per week and friends have given her £5. She receives board and lodging in return for light household duties. Voted £18 in 12 instalments.

Widow, aged 63, of M.R.C.S. who practised in Cheltenham and died in 1920. Through rheumatic fever and congestion of the lungs applicant has only earned £40 during the last 12 months. Youngest son was studying medicine, but owing to death of father had to give it up and take a post in a bank. Applicant has had an offer to go to B.C. to look after some children, but has not the means to go. Voted £5.

Widow, aged 49, of M.R.C.S. Eng. who practised in Wales and died in 1910. A brother-in-law has aided the applicant to the extent of £15 per annum, but he has now retired and is unable to continue this assistance. This money was used to pay the eldest daughter's travelling expenses to and from school, and the applicant asks the Fund if they can make a grant for this purpose. Voted £10 in two instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, K.B.E., at 11, Chandos-street, Cavendish-square, London, W. 1.

INDEX TO "THE LANCET," VOL. I., 1923.

THE Index and Title-page to Vol. I., 1923, which was completed with the issue of June 30th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.

SMALL-POX IN ENGLAND AND WALES.—During the week ending July 7th 145 cases of small-pox were notified (the largest number this year) in England and Wales, the distribution being as follows: Derbyshire 15 (Alfreton 1, Long Eaton 13, Shardlow R.D. 1); Durham 1 (Stockton-on-Tees "doubtful"); Gloucestershire 93 (Gloucester 91, "including 18 cases of chicken-pox rediagnosed as small-pox," Gloucester R.D. 1, Stroud R.D. 1); Lancaster 1 (Colne); Nottinghamshire 22 (Kirkby-in-Ashfield 8, Sutton-in-Ashfield 14); Westmorland 1 (Windermere "doubtful"); Wilts 1 (Swindon); Yorks West Riding 8 (Huddersfield 1, Bentley-with-Arksey 1, Doncaster 1, Doncaster R.D. 5); Flintshire 1 (Flint); Monmouth 2 (Rhymney 1, Risca 1).

Modern Technique in Treatment.

A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.

XXIX.—THE TREATMENT OF HABITUAL CONSTIPATION.

THE general public usually believes that it is capable of diagnosing and treating habitual constipation for itself. Consequently a patient rarely comes for advice who is not already under treatment prescribed by himself or his friends. In many cases his symptoms are due to his pills rather than his constipation, and it is impossible to make an accurate diagnosis, upon which satisfactory treatment must depend, until he discontinues to use his remedies for a few days.

My investigations with the X rays between 1907 and 1909 led me to classify habitual constipation broadly into two forms: (1) colonic constipation, in which there is delay in the passage of fæces from the cæcum to the rectum, and (2) dyschezia, or inefficient defæcation, in which the patient has lost the power of expelling the contents of the rectum. In colonic constipation the cæcum and ascending colon, or less frequently some other part or the whole of the colon, is found on abdominal palpation to be distended with fæces, but digital examination shows that the rectum is empty. On the other hand, in dyschezia the rectum is full, although the patient is generally unaware of this and is quite incapable of emptying it; no accumulation of fæces is present in the rest of the bowel, except sometimes in the pelvic colon. An accurate diagnosis can only be made with the aid of the X rays, which show exactly what part of the colon is involved in colonic constipation, whilst in dyschezia they show that the passage as far as the rectum is normal in rate. In my experience the two forms of constipation are about equally common, many of the most severe cases being examples of dyschezia. Colonic constipation, if untreated, is much more likely to give rise to toxic and other symptoms than dyschezia, which generally leads to nothing more than inconvenience and slight local discomfort, unless it is treated by aperients and other unsuitable measures, which themselves give rise to toxæmia by irritating the colon and keeping it full of fluid fæces, which form an excellent medium for bacterial activity.

In general colonic constipation requires treatment by diet, and, in severer cases by drugs and massage, and dyschezia by persuasion and exercises, and, in severer cases, by graduated enemas. In both attention to the

Hygiene of the Bowels

is essential. Constipation can generally be prevented by proper attention to the hygiene of the bowels, and most mild cases, especially of dyschezia, can be cured in this way. The individual should have a cold bath on getting up, or at least a cold douche over the abdomen and back after a warm bath, and should not breakfast in bed. He should rise sufficiently early to allow plenty of time for his visit to the water-closet, which he should never fail to make after breakfast, even if he feels no desire to open his bowels. If the bowels do not act, he should try again after a walk or after lunch or dinner. The water-closet should be well ventilated, but not too cold. The seat should be low enough to allow a crouching position to be adopted; if necessary, a footstool should be provided; in severe dyschezia a bed-pan should be placed on the floor, over which the patient can squat. Too much attention should not be paid to the subject; the patient should realise that "his bowels were made for man, not man for his bowels." For many one action on alternate days is sufficient; occasionally even longer intervals are normal, and I have known very healthy people with unusually greedy colons, who were never well if their bowels opened more than once a week.

Diet.

All cases of habitual constipation are benefited by taking a suitable diet, and in slight cases this should make the use of drugs unnecessary. The guiding principle is to give plenty of fruit and green vegetables, which leave an adequate residue to act as a mechanical stimulus to intestinal activity, and in most cases also contain chemical stimulants to peristalsis. It is a good plan to take ten or a dozen stewed prunes as well as jam or marmalade for breakfast every morning, and fruit, either raw or stewed, and green vegetables either cooked or in salad, both at lunch and dinner. A diet of this kind is particularly necessary in cases of habitual constipation caused by a greedy colon, in which the absorptive power of the bowels is developed to an abnormal extent. In such cases the addition of a teaspoonful or more of powdered agar-agar to porridge, potatoes, or stewed fruit at each meal is useful, as it expands by the absorption of moisture, and, being almost completely indigestible, adds bulk to the otherwise insufficient fæces.

Drugs.

For colonic constipation a drug is required which stimulates the colon without unduly irritating it, and the dose employed should be one which produces a single formed stool each morning. In my experience senna is, as a rule, the most satisfactory, and it has the great advantage that the patient can accurately regulate the dose he takes from day to day. In a case of moderate severity seven senna pods should be tried the first evening. The number can then be increased or diminished according to the result obtained, and when the right dose is discovered the patient should make frequent attempts to reduce it by one pod every other night. The pods should be soaked in cold water for three hours, and the infusion should be drunk either at dinner-time or on going to bed. Hot water extracts a griping element from the pods, which is absent from the cold infusion. If any griping still results, one minim of tincture of belladonna should be added to the infusion for each senna pod.

Liquid paraffin passes through the alimentary canal without undergoing any change. It is quite inert, but as Neville Wood, who introduced it to the profession in 1899, first pointed out, it makes hard fæces soft, and so causes their passage through the bowel and their final expulsion from the rectum to be comparatively easy. It is therefore valuable in dyschezia as well as in colonic constipation. It can be used in addition to any other methods of treatment; if, for example, half an ounce is taken after breakfast and after dinner, the dose of senna required in a case of colonic constipation is much reduced.

Enemas.

In the majority of cases of habitual constipation there is a tendency for an accumulation of fæces to occur. If abdominal or rectal examination has shown that this is the case, the bowels should be thoroughly washed out before any other treatment is begun. In very severe cases of colonic constipation a douche should be given daily for two or three weeks, the quantity used being gradually reduced from an initial injection of a pint and a half. The efficacy of the treatment is greatly increased by having the colon massaged whilst the water is still present in it. The fluid should be run in at a pressure no greater than 18 inches, the quantity used should never exceed a pint and a half, and the tube should not be inserted more than two inches from the anus. The X rays have proved that fluid introduced in this way always reaches the cæcum unless organic obstruction is present, and that a tube introduced more than 4 inches—as with the old-fashioned "high enema" of the so-called Plombières treatment—simply curls round and round in the rectum and irritates its mucous membrane, as it is almost impossible for it to pass round the pelvic-rectal flexure into the pelvic colon.

If re-education alone fails to cure a case of dyschezia, graduated glycerine enemas should be tried. The

patient makes an effort to open his bowels each morning after breakfast. If he fails, an ounce of glycerine is injected. Should this prove successful, the next morning one drachm of the ounce is replaced by water, and on successive days the strength of glycerine is steadily reduced till eventually an ounce of water with no glycerine is used. By this time the patient is generally cured, but it is occasionally necessary to continue with the water in diminishing quantity for a few more days. Sometimes glycerine does not act satisfactorily. Graduated water enemas should then be substituted; if a pint is found to act well, the amount used should be reduced by one ounce every day till no more injections are required.

Massage and Exercises.

In severe cases of colonic constipation massage is of the greatest value. The first treatment should be given after the patient has had an opaque meal; he lies on the X ray couch under the fluorescent screen, so that the masseur can be shown the exact position of the colon, the part chiefly affected, and what manipulations are required to influence it. In dyschezia, and in some cases of colonic constipation, massage is very useful for improving the condition of the abdominal muscles. Swedish exercises are still more valuable. In the numerous cases of dyschezia, which are due to weakness of the muscles of the abdominal wall and pelvic floor, daily exercises for some weeks produce excellent results. The muscles of the pelvic floor should not be forgotten, as in women who have borne children weakness of the levator ani muscle is a very common factor in the production of dyschezia. The patient should be taught to draw in her anus, just as if she were trying to prevent a liquid stool from being evacuated; she then relaxes. This exercise should be repeated 30 times every morning and evening whilst lying in bed. Not only does it help to cure the dyschezia, but it quickly overcomes minor degrees of rectal and vaginal prolapse.

Regular exercise in the open air is very beneficial. Slight constipation can often be cured by inducing a man to walk a couple of miles on his way to business; though unable to open his bowels directly after breakfast, he will have no difficulty on arriving at his office. A man who is busy during the week should take as much exercise as possible on Saturday afternoon and on Sunday, and he should have adequate annual holidays to prevent over-fatigue, both mental and physical; this is an important factor in many cases of habitual constipation.

Surgery.

There is no surgery of habitual constipation. Ileo-sigmoidostomy, and partial and complete colectomy are—or should be—dead. Grave organic disease leading to intestinal stasis is not included under "habitual constipation"; it calls, of course, for operation. But in the absence of this, surgery is as much out of place in disorders of the colon as it is in functional disorders of the stomach.

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Physician to Guy's Hospital.

Previous articles in this series are:—
I. Medical Treatment of Gall-Bladder Disease, by Sir Humphry Rolleston. II. Early Pulmonary Tuberculosis in the Young Adult, by Dr. Claude Lillingston. III. Neuralgias of the Head and Neck, by Dr. Wilfred Harris. IV. Whooping-Cough, by Dr. T. Izod Bennett. V. Scabies and Pediculosis, by Dr. H. W. Barber. VI. Abdominal Injuries, by Prof. Charles A. Morton. VII. Aural Discharge in Children, by Mr. Harold Barwell. VIII. Vaginal Discharge, by Mr. A. W. Bourne. IX. Minor Injuries to the Eye, by Sir J. H. Parsons. X. Epilepsy, by Dr. Gordon Holmes. XI. Inguinal Hernia in Childhood, by Mr. C. W. G. Bryan. XIV. Club-foot in the Newly-born, by Sir Robert Jones. XV. Intestinal Worms, by Dr. R. Hutchison. XVI. Primary or Spasmodic Dysmenorrhœa, by Dr. G. Blacker. XVII. Measles, by Dr. Foord Caiger. XVIII. and XIX. Heart Failure, Preventive Treatment, Therapeutics, by Dr. J. Parkinson. XX. Gonococcal Epididymitis and its Bearing on Sterility, by Mr. Kenneth M. Walker. XXI. Ante-partum Hæmorrhage, by Dr. T. Watts Eden. XXII. Ringworm, by Dr. A. Whitfield. XXIII. Cystitis, by Mr. J. B. Macalpine. XXIV. Hæmorrhoids, by Mr. R. M. Rowe. XXV. Puerperal Sepsis, by Lady Barrett. XXVI. Cyclic Vomiting, by Dr. G. F. Still. XXVII. Asthma, by Dr. E. P. Poulton. XXVIII. Traumatic Rupture of the Urethra, by Mr. G. Grey Turner.

Special Articles.

IMPERIAL CANCER RESEARCH FUND.

ANNUAL REPORT.

THE twenty-first annual report of the Imperial Cancer Research Fund, under the direction of the Royal College of Physicians of London and the Royal College of Surgeons of England, was submitted at the annual meeting of the Fund held on July 17th, the Duke of Bedford, President of the Fund, being in the chair.

Honorary Treasurer's Report.

Sir George Makins, honorary treasurer, in his report, stated in the past year subscriptions to the Fund had amounted to £951 11*s.* 6*d.*, being an increase of £447 1*s.* 0*d.* on the previous year, and several legacies of considerable amount had been received, totalling £3,675 15*s.* 6*d.* The amount of £4000 promised by Mr. and Mrs. Todman last year has been received, and in addition, through the munificence of an anonymous benefactor, the Alice Memorial Fellowship, amounting to about £500 per annum, had been endowed. It was earnestly to be hoped that supporters would continue to contribute to the Imperial Cancer Research Fund, as by so doing they would be supporting researches which have proceeded without cessation since the year 1902.

Secretary's Report.

It was announced that the lease of the farm hitherto occupied by the Fund expires in September, and that a portion of the land acquired by the Medical Research Council at Mill Hill has been leased from the Council for 21 years. It is hoped that the close association between the two staffs in the laboratories to be built at Mill Hill may be of considerable benefit to scientific investigation.

The conditions agreed on for the prize offered by Lord Atholstan for the discovery of a cure for cancer are set out, and include a provision that all applicants must in the first place satisfy a recognised medical faculty or a leading medical society in his or her own country (*a*) that there is some scientific basis to justify experimental investigation of the professed cure, (*b*) that any cases said to be successfully treated were, in fact, cases of cancer, and one that applicants must disclose to the medical faculty or medical society investigating the professed cure its nature and ingredients, and the method of its preparation. Lord Atholstan's grant to the Fund for research has been utilised by the appointment of Dr. A. M. Begg to carry out an investigation on the subject of the infective sarcomata (dogs and fowls) with a view to defining the difference, if any, between them and true neoplasms. In March last the liberal offer of an anonymous donor to found an "Alice Memorial Fellowship" for cancer research under the auspices of the Imperial Cancer Research Fund was accepted, and Dr. Marshall Findlay has been appointed the first "Alice Memorial Fellow." The list of scientific papers published by members of the staff during the year is an imposing one. Material from the laboratory has been sent to 13 workers at home and abroad. A considerable portion of the annual report is devoted to an account of the negotiations between the executive committee of the Fund and the committee of the British Empire Cancer Campaign. When the Fund was first approached early in April of this year by the promotors of the Campaign with a view to its coöperation, a resolution was passed that before the Imperial Cancer Research Fund agrees to coöperate with the British Empire Cancer Crusade in organising and carrying out cancer research, it must be satisfied as to the conditions to be adopted in allocating the money to be raised by the appeal. At another meeting on April 18th, as the result of further correspondence, it was agreed that the Fund did not see its way to associate itself with the cancer crusade unless

other cancer research institutions were invited to take part and to receive similar financial support. The Fund suggested that the following institutions should be invited to occupy a similar position in relation to the crusade—namely, the Cancer Hospital, the Middlesex Hospital, the Radium Institute, the Manchester Cancer Investigation, the Liverpool University Cancer Committee, the Glasgow Cancer Hospital, and the Marischal College, Aberdeen, the attitude of the Fund depending on that of the majority of these institutions. The Fund deprecated any appeal to the public based on the supposition that if large sums of money are provided a cure will be found at an early date. The committee of the British Empire Cancer Campaign did not at first (May 2nd) see their way to invite the bodies mentioned to appoint representatives, and consequently it was considered inadvisable by the executive committee that the Fund should participate in the Campaign.

Subsequently, as the result of further correspondence, numerous interviews, and an intimation that most of the institutions interested in cancer research above referred to had been invited and that some had agreed to join in the campaign, the executive committee on May 16th decided to appoint five representatives to the grand council of the Campaign. Since this time further difficulties have arisen, certain clauses in the Articles of Association of the Campaign, which had not previously been disclosed to the executive committee of the Fund, not meeting with their approval; but in view of the proposed modifications in the Articles of Association, including the formation of a scientific committee which shall advise on the allocation of funds for scientific research, it is believed that the Imperial Cancer Research Fund will be able to coöperate in the Campaign.

Speech of Chairman of Executive Committee.

The report of the Director, Dr. J. A. Murray, was well summarised by Sir William Church, chairman of the executive committee, in moving the adoption of the report. He said:—

Vitamin Deficiencies.—The laborious study of vitamin B and vitamin A deficiencies in which Dr. W. Cramer has been engaged for the last three years may now be considered as completed. Neither of these deficiencies, nor both combined, arrested the growth of cancer, even when pushed to a degree incompatible with life. The great adaptability of the cancer cell to changes in its environment frustrated the hopes which were aroused by the discovery of the profound influence of these food accessories on the growth of young animals. In the course of these researches a striking similarity was found between the effects of vitamin deficiencies and the damage produced by radium and X rays. The study of this relation was made possible by the close and friendly collaboration of Dr. Mottram of the Radium Institute.

Tissue Culture.—The improvement Dr. Drew has made in the methods of tissue culture outside the body have enabled him to add considerably to our knowledge of the factors which control the differentiation of tissues, and also of the mechanism of repair after injury. Using the growth of normal tissues in vitro as an indicator of the presence of active substances in the culture medium, he has proved that differentiation of epithelial cells is mainly controlled by the interaction of the connective tissues with them. When connective tissue cells are absent, the characteristic form and arrangement of the epithelial cells do not appear. The addition of connective tissue cells to an undifferentiated sheet of epithelial cells is quickly followed by typical differentiation. The process can be reversed, and repeated at will. The same holds good for cultures of transplantable new growths. Extremely undifferentiated mammary carcinoma can be turned in vitro into an adenomatous structure very similar to developing mamma. These results are a further step in the elimination of unimportant details from the cancer problem. Loss of differentiation when it occurs in cancer, is not a fundamental permanent feature as has long been supposed. It is superficial and may disappear without corresponding change in malignancy.

Repair of Injury.—The way in which injury sets repair agoing has been studied and throws an interesting sidelight on the growth of cancer. While embryonic tissues and tumours start growing at once when placed in a suitable culture medium, tissues from adults, even if young, only start growing after an initial delay which may be as long as 14 days. If adult kidney be ground up with saline solution and incubated for two hours and then filtered, the addition of the filtrate to the culture medium starts adult tissue growing at once. An extract of unincubated damaged kidney has no such power. An extract of undamaged rapidly growing carcinoma or sarcoma, however, is as active as the extract of incubated kidney. The cancer cells produce in the ordinary course of their existence substances which normal tissues elaborate only in response to injury.

Scientific Report.—A scientific report will be published in the autumn giving an account of these researches of Dr. Cramer and of Dr. Drew, as well as further observations by Dr. Murray on the difficulty met with when the attempt is made to produce a new carcinoma by tar painting in animals in which primary cancer has already appeared. The extension of Dr. Russell's work on carbohydrate metabolism of normal and cancerous tissues to the pentoses, and other papers, will also appear in it.

Statement of Progress Achieved.—As this is the last occasion on which I shall move the adoption of the annual report, I hope I may be permitted to occupy your attention a little longer with a brief statement of the progress achieved in the 21 years I have been chairman of the executive committee. When the Fund started cancer was generally believed to be a disease of civilised man. A parasitic causation was very widely believed in and those who regarded such a causation as unlikely in carcinoma were ready to admit its probability for sarcoma. We know now that cancer occurs in all races of mankind and in all vertebrate animals. The sarcomata have finally taken their place alongside the carcinomata as malignant new growths of connective tissue. Their frequency increases as age advances in the same way as the former, and sarcoma or carcinoma can be produced at will in laboratory animals according as the specific irritant is applied to connective tissue or to epithelium.

The rôle of chronic irritation in starting cancer has received experimental proof. Incidentally a rational explanation of the characteristic age incidence of cancer has been provided at the same time. The influence of heredity can be relegated with considerable certainty to the transmission of an enhanced sensitiveness to specific forms of irritation. The transplantability of new growths to healthy animals has made a careful study of their essential features possible. The phenomena of resistance to transplantation and tissue immunity with their curious limitations have been studied in detail. The explanation of the failure of these methods to furnish a means of treatment for cancer has made more precise our conception of the meaning of individuality in the higher animals. In all these investigations the Imperial Cancer Research Fund has played its part, in many of them a leading part. The present annual report shows that the working organisation is still vigorous and competent, and in laying down the duties of chairman of the executive committee I wish the Fund a successful future with confidence.

President's Speech.

The President said he was in complete agreement with the attitude taken by the executive committee, with reference to coöperation with the British Empire Cancer Campaign.

The President understood that a subcommittee appointed by the grand council of the Campaign had decided to make certain recommendations for embodiment in the Articles of Association, including the appointment of an advisory committee to include members nominated by the Royal Society and by the Medical Research Council in joint consultation. In the event of these modifications being carried out they would secure the confidence and coöperation of bodies engaged in cancer research, including the Imperial Cancer Research Fund, because in their opinion the future administration of the Campaign would then be guided by those whose knowledge would enable the best use to be made of all funds available. It was obvious from letters and articles which appeared from time to time in the press that incredibly little was known of the work that had already been done by this Fund and by other research bodies in this country and abroad—for instance, the information regarding cancer collected by the Imperial Cancer Research Fund relating to the disease in native races throughout the empire and of its occurrence in all species of the animal kingdom. For this reason it would seem to be essential that the administration of the Funds of the Campaign should be in the hands of those who know what experimental work has already been done, and what information on the subject has already been accumulated. By these means useless repetition would be avoided and public money used to the best advantage.

The report showed that the Fund continued to pursue its considered policy of coöperation with the workers in different laboratories coupled with the interchange of material; such coöperation and coördination must, however, be voluntary and could not be forced on the workers.

The President then proposed, and Dr. Sidney Martin, F.R.S., seconded, the adoption of the report. Sir William Church was elected a Vice-President on his resignation of the chairmanship of the executive committee.

PROVIDENT ASSOCIATION FOR HOSPITAL AND ADDITIONAL MEDICAL SERVICES.

REPORT FOR PERIOD NOV. 1ST, 1921–FEB 28TH, 1923.

THE National Provident Association for Hospital and Additional Medical Services, by arrangement with the several interests concerned, was established in London on Nov. 1st, 1921, and £55 was spent in a few newspaper advertisements. When 2315 members were rapidly enrolled it was decided to treat the first year's working as an experiment and not seek further members until the Association was incorporated and put on a permanent basis. The amount received in subscriptions was £1770.

Objects of the Scheme.

The object of the Association was to induce people, while in health, to make provision for the time of serious illness and to enable its members to obtain such services other than ordinary—i.e., general practitioner—treatment as they might require in illness without additional charge, and the services provided included inter alia: the ordinary services of a coöperating hospital, consultations at home in serious illness, the services of visiting nurses, treatment at the Radium Institute when required, and the use of ambulances.

It was decided: (1) That the scheme should be provident—i.e., that the subscriptions should be of such amount as would in the aggregate meet the cost of the services required without encroachment upon charitable funds. (2) That the administration should be in the hands of a neutral body which should impartially guard the interests of all concerned. (3) That the work of the general practitioner should not be interfered with, but that, as far as possible, he should be helped in his work for the benefit of those of his patients who were members of the Association. (4) That all benefits under the scheme should be obtained on the recommendation of the private medical attendant of the member. (5) That there should be no interference with the existing rules or routine and work of the hospitals or of any other bodies concerned. (6) That the income limit prescribed for members should, as nearly as possible, be in accordance with the income limits of those ordinarily admitted to hospital treatment.

An Experimental Year.

Arrangements had also been made for group membership on the same principles at a lower rate of subscription which would cover the hospital services only, but this branch was transferred to the Hospital Saving Association, who also took over and carried through the incorporation which had been applied for to the Board of Trade. The income of £1770 for the period was allocated beforehand as follows, viz.:

		£	s.	d.
To nursing	3/40ths	132	15	0
To ambulances	1/40th	44	5	0
To consultations and radium	6/40ths	265	10	0
To coöperating hospitals	26/40ths	1150	10	0
To administration	3/80ths	66	7	6
To reserve	5/80ths	110	12	6

Of the 2315 members 56, or 2·4 per cent., were in-patients during the year and their average stay in hospital was 23·8 days, while 258, or 11 per cent., were treated as out-patients or received special services, such as X ray, massage, electrical treatment, laboratory investigations, &c., the returns showing a total of 1378 attendances, or an average of 5·4 per patient. The payments to coöperating hospitals amounting to £1150 10*s.* are equivalent to a payment of £5 7*s.* 1*d.* a week for each in-patient and of 10*s.* for each out-patient, and include any provision which the hospitals may have made for a payment to general medical staff funds. Consultations in the patients' own homes were paid for by a fee of 3 guineas for each consultation. The amount allocated to nursing has been paid in full, but after paying for all the services rendered during the period, a balance of £406 remains in hand upon the other accounts, after all liabilities to members have been finally discharged.

Change of Name and Incorporation.

The committee feel that the year's experiment has fully justified their anticipations, and the statistical results encourage them to hope that in a system of provident coöperation lies the solution to the financial problem of the voluntary hospitals.

The report is signed by Sir Arthur Stanley, Lord Dawson of Penn, Mr. W. McAdam Eccles, Sir Alan G. Anderson, and Dr. J. F. Gordon Dill (hon. secretary), members of the Executive Committee.

On May 9th, 1923, the Association was registered under the Companies Acts, as a company not for profit, under the title of the British Provident Association for Hospital and Additional Services, the signatories to the memorandum and articles of association in addition to those named above being Lord Knutsford and Captain J. M. Gordon Dill.

RESEARCH IN TROPICAL DISEASE.

IV. THE WELLCOME BUREAU OF SCIENTIFIC RESEARCH.

THIS Bureau was founded towards the end of 1913 by Mr. Henry S. Wellcome, who, in 1902, had presented the laboratories bearing his name to the Sudan Government, and who has, in many directions, evinced his keen interest in tropical research. For the first few years of its existence the Bureau was housed at 10, Henrietta-street, Cavendish-square, but, subsequent to the war, removed to the premises it now occupies at 26, Endsleigh Gardens alongside the London School of Tropical Medicine, with which it has the privilege of coöperating in certain directions. From the start it has been under the direction of Dr. Andrew Balfour, formerly in the Education Department of the Sudan Government, director of the Wellcome Tropical Research Laboratories, Gordon Memorial College, Khartoum, and medical officer of health for that city.

The Bureau exists not only for purposes of research, more especially in connexion with tropical medicine and hygiene, but also with a view to supplying information gratis to medical men, sanitary administrators, and others interested in these subjects. From small beginnings it rapidly progressed, and though for a time its routine activities were curtailed by the war, the whole of its scientific staff being employed on military duties in one capacity or another, and for the most part abroad, work was resumed thereafter and has developed in various directions. There is now a deputy director, Lieut.-Colonel G. E. F. Stammers, R.A.M.C. (retd.), and departments of protozoology, pathology, bacteriology, helminthology, and entomology have been formed. In connexion with the last named, Mr. Wellcome has established a field laboratory at Wisley, Surrey, where work is carried out on mosquitoes and other insects of medical interest. An important feature of the Bureau is the large teaching and research museum of tropical medicine and hygiene arranged on graphic and somewhat novel lines, of which Dr. S. H. Daukes is the curator. This museum is freely open to all who may care to visit it, and arrangements are made whereby lecturers may bring their students and impart

instruction to them in the museum itself. Evidence that these facilities are appreciated is given by the number of visitors and classes, the latter including many missionaries under training for the tropics.

Affiliated to the Bureau are the Wellcome Chemical Research Laboratories, which conduct researches in various departments of organic and inorganic chemistry and are specially concerned with plant analysis. Under Dr. T. A. Henry, late of the Imperial Institute, they collaborate with the Bureau in the investigation of native drugs, poisonous plants, spear, arrow, and fish poisons, and other matters intimately bound up with research in tropical medicine. The Bureau is also recognised by the Medical Research Council as an institution where its research workers may carry on investigations, and at the present moment two of its staff are engaged upon inquiries, dealing respectively with trypanosomiasis in British sheep and rat-bite fever.

Since its inception the Bureau has published over 100 papers dealing with many fields of tropical research, and has issued two volumes, one on tropical hygiene, the other on protozoology. As examples of the kind of work which has been undertaken, there may be cited the papers by Dr. C. M. Wenyon on malaria, intestinal protozoa, hæmatozoa, and Weil's disease; those by Dr. A. C. Stevenson on sleeping sickness, *Leptospira icterohæmorrhagiæ* in rats and the histopathology of typhus fever; those by Major H. C. Brown, I.M.S. (retd.), on remedies for dysentery; those by Dr. W. N. F. Woodland on porocephaliasis and on certain worms found in Nile fish; those by Mr. M. E. MacGregor on mosquitoes in England, and on myiasis; and those by Mr. G. C. Dudgeon on tropical fruit foods and certain parasites of rats. Joint work carried out with the staff of the chemical laboratories is evidenced by papers on the toxicity of emetine and on the reaction of the medium as affecting the toxicity of certain alkaloids towards protozoa, the latter being based on the combined researches of Dr. Henry and Major Brown. Apart from the war services rendered by the staff in several tropical and sub-tropical war areas, the Director-in-Chief carried out investigations in the West Indies and Central and South America prior to July, 1914, while of late years his services and those of Mr. MacGregor have been utilised by the Colonial Office in connexion with the sanitary regeneration of Mauritius.

In addition to research work in London the Bureau hopes to institute inquiries in the tropics and to link up the work at home with that abroad, where, it may be noted, museums modelled on that attached to the Bureau have been established in certain places, as, for example, Calcutta, Zanzibar, and Dar-es-Salaam.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

The Title of "Specialist."

THE title of specialist has not hitherto been officially recognised; its assumption has been left to the discretion of a medical man and to the disciplinary power of his medical society, and the Government has declined to introduce a special examination or an official qualification in this connexion. The title has been abused—some medical men, after perhaps no more than a six weeks' post-graduate course, and sometimes without even that training, have placed it on their doorplates, thereby attracting patients to the detriment of their colleagues. The German Medical Association will deal with the matter at its next meeting; reports will be presented by a general practitioner and by a specialist. The reporters, Dr. Küstermann, of Munich, and Dr. Stuelp, of Mülheim, have published in the *Aerztevereins-Blatt*, the official journal of the Association, the proposals to be made to the meeting. They state that scientific and technical training superior to that of the average medical man is necessary for a specialist. Only the following branches of medical science are to be recognised as specialities: (1) surgery, (2) gynæcology and obstetrics, (3) orthopædics, (4) diseases of the eyes, (5) diseases of the ear, nose and throat, (6) diseases of the skin, venereal diseases, and diseases of the urogenital organs, (7) nervous and brain diseases, (8) radiography and heliotherapy, (9) diseases of the mouth and jaws, (10) diseases of the stomach and intestines and of metabolism, (11) internal diseases, (12) lung diseases, (13) diseases of children. The report states that it should be considered unprofessional to assume the title of specialist for more than one of those branches, except those closely connected—for example, surgery and orthopædics—but even this exception should be valid only for those already in practice; new specialists should choose one branch only. It should also be unprofessional to assume the double title of specialist and general practitioner, as is done in some parts of Germany. Specialist training should last for at least three years, and in relation to surgery, gynæcology, and internal medicine for four years. The intending specialist must have acted as an assistant in a university clinic, in a special department of a large hospital, in an out-patient department, and also as a private assistant to a specialist of good standing, the latter for a time not exceeding one-third of the entire training. A specialist desiring to practise should give notice to the local medical organisation, which will inquire as to whether he has fulfilled the conditions. Inquiry should be entrusted to a board consisting of specialists and general practitioners in equal number. If the board declines to recognise the specialist, the latter should have the right of appeal to the provincial medical chamber.[1] When, notwithstanding a definitive rejection of his claim, he insists on calling himself a specialist, he should be liable to prosecution before the court of honour of the chamber.[1] When treatment by a specialist is no longer necessary, the latter should send the patient back to a general practitioner, and should abstain from general practice himself. The report rejects the idea of legislative intervention in this important question, which, it states, should be left to medical discretion and settled by common agreement of specialists and general practitioners assembled in the next general meeting of the Medical Association.

Meeting of Socialist Doctors.

At a recent meeting of German and Austrian Socialist medical men in Berlin the chairman, Dr. Zadek, formerly a Berlin city councillor, pointed out that the number of socialists was smaller among the medical profession than in any other, as the sick-clubs, of which the great majority are under Socialist control, are somewhat hostile to the medical profession; medical socialists, however, were by their position fitted to settle disputes between these parties. Reports were read on the sick-club question in Germany and Austria; Dr. Epstein, of Munich, said that once the medical man became a State official, as required in the programme of the Socialist party, the struggle between individual medical men and the struggle of the profession against the clubs would cease. Prof. Grotjahn, a member of the Prussian Parliament, proposed that the clubs should appoint medical men for group work in rooms placed at their disposal on sick-club premises, and in hospitals, out-patient departments, and first-aid stations. Patients unwilling to consult the appointed medical men might apply to their club for higher sick-pay, and might then consult a private medical attendant. Dr. Weyl, a Berlin city councillor, advocated the appointment of a limited number of medical men; he believed that in Berlin 1500 medical men would suffice to secure an adequate attendance to club members, instead of the 3000 and more at present engaged in this work. He did not, however, say what would become of medical men excluded in this way. Dr. Kautsky, of Vienna, wished that medical officers elected by the clubs should again stand for election after two years, appointment for life being made

[1] See THE LANCET, 1923, i., 156.

dependent upon re-election. This might mean that before definitive appointment candidates would prescribe medicines lavishly and give certificates for sick-pay free in order to obtain votes. It was generally agreed that the nationalisation of the German medical profession as required by the programme of the Socialist party was impossible under the present financial conditions.

Control of New Drugs.

The German Association for Internal Medicine, together with the Association of Sick Clubs, have made arrangements for examination of new drugs produced by chemical manufacturers. A commission has been set up under the chairmanship of Prof. Klemperer to examine the efficacy and cost of new drugs; the commission may base their opinion on pharmaceutical and clinical testimonials produced by the manufacturer provided the certificates shown derive from trustworthy sources. Otherwise the remedy will be sent for pharmacological examination to a university or hospital. The drugs recommended by the commission after examination will be registered and the register published regularly, special mention being made of drugs suitably priced for use in sick-club practice. The clubs have provided the commission with adequate funds, hoping in this way to exclude certain new drugs which do not differ much from older remedies except by their sounding names and higher prices.

Conditions in the Rhenish Spas.

Since the beginning of the Allied occupation the Rhenish spas and health resorts have been in great distress. The majority of German patients decline to go there for sentimental reasons and also because the cost of living is several times more expensive in occupied districts than in the rest of Germany. Medical men practising at the Rhenish spas have appealed to their professional brethren in unoccupied Germany to send more patients; they assert that as the severe measures put into force by the occupying forces affect inhabitants only, the outside patient has nothing to fear and may take his cure as he desires. Many of the spas are of international renown, such as Wiesbaden, Ems, Kreuznach and Neuenahr; Homburg, so well known to English visitors, is not occupied but is seriously affected, being situated only a few hundred yards from the border of the occupied district. These spas were always chiefly, and are now nearly exclusively, frequented by foreigners, but Wiesbaden has now only a third of its pre-war numbers of patients, and Ems only a quarter. The great bathing establishments and kursaals of those spas are thus nearly empty. The loss to a city like Wiesbaden is estimated at milliards, and the municipal authorities have requested the German Government to allow the reopening of the gaming establishment closed by law in 1872. The appeal of the Rhenish medical men to their colleagues outside the Rhineland was, of course, made before the total blockade of the Ruhr and Rhine districts against Germans; but visitors belonging to the Allied nations may go there without special permission, and English visitors will certainly be as welcome as formerly.

ABERDEEN JOINT HOSPITALS SITE.—The Aberdeen town council has offered to dispose of the Burnside and Forresterhill estates to the parties of the proposed joint hospital accommodation scheme at a price of £35,000, the respective proportions of the price and ground being allocated as follows: Corporation (Public Health Dept.), 41 acres, at a cost of £13,335; Royal Infirmary, 36 acres, at a cost of £11,110; Sick Children's Hospital, 17¾ acres, at a cost of £5555; University, 16¼ acres, at a cost of £5000.

BURY INFIRMARY EXTENSION.—Lord Derby, at Bury, on July 14th, laid the foundation-stone of a war memorial, which will be an addition to the Bury Infirmary, and will be used as a children's hospital. The estimated cost, including endowment, is £42,500, of which £40,000 have already been subscribed. On the morning of the opening ceremony an anonymous donor sent bank notes for £1000.

Obituary.

DONALD MURRAY, M.B., C.M. GLASG., D.P.H.

Dr. Donald Murray, sometime Member of Parliament for the Western Isles, died in a London nursing home on July 6th at the age of 60. He was born at Stornoway, in the Isle of Lewis, on Oct. 21st, 1862, and received his medical education at the Universities of Glasgow and Aberdeen, graduating M.B., C.M. from the former in 1890. Taking up general practice first at Brora, in Sutherland, and then in his native burgh, he afterwards, in 1910, obtained the diploma in public health at the University of Aberdeen, and became medical officer of health for Stornoway and the Lewis district, as well as school medical officer for Lewis and the western portion of Ross-shire. He was soon elected to the chairmanship of the school board and a justice of the peace for Ross and Cromarty. Always a keen debater, he presided over the Glasgow Medico-Chirurgical Society when still almost a student, and he became president of the Glasgow University Liberal Club. In 1918 he was returned as Independent Liberal member of Parliament for the Western Isles Division of Inverness and Ross and Cromarty, but was defeated at the last general election by the National Liberal candidate.

Captain Walter Elliot writes: "As secretary of the Medical Committee of the House of Commons I saw a very great deal of Donald Murray during the four years 1918–22, and we soon became fast friends. I think it was impossible for anyone to know Murray without conceiving for him the warmest friendship and admiration. His sincerity, his devotion to the interests of the community which he represented, his gaiety, and, above all, his tremendous humanity, were qualities rarely combined in one man. In political matters he gained the respect of his opponents both by his knowledge and his really extraordinary power of hard work, and as a man it was, I think, the verdict of the House as a whole that he was the only medical member of the House of Commons of any party whom any of us, myself included, would really have wished to see at his bedside in time of sickness. This is perhaps the ultimate test of a man, certainly of a physician, and judged by it the name of Donald Murray stands high indeed."

ETTIE SAYER, M.B., B.S. LOND.,

CONSULTING PHYSICIAN TO THE SOCIETY FOR THE WELFARE OF THE FEEBLEMINDED.

Miss Ettie Sayer died on July 7th after a long illness at the age of 48. She was the daughter of William Sayer, of Bacton, Norfolk, and received her early education at Rossell School, Paignton, Devon, afterwards entering University College and the London School of Medicine for Women, where she was Chesterfield medallist. Graduating M.B., B.S. Lond. in 1889, she became house surgeon to the Tunbridge Wells Eye and Ear Hospital and then registrar to the St. John's Hospital for Skin Diseases, before accepting the appointment of physician to the Cowley Mission to Mahommedan and Kaffir women. In 1901 Miss Sayer was made plague medical officer to the Cape Government, and in this capacity she visited the concentration camps during the Boer war and later the lepers in Robben Island. After her return to England Miss Sayer was assistant medical officer (1902–07) to the Education Department of the London County Council and acted as lecturer on first-aid to that body and to the Church Army nurses. Her interests were many-sided: a Fellow of the Royal Society of Medicine and of the American Electro-Therapeutical Society, she was also a member of the council of the Psycho-Medical Society and of the Eugenics Society, and was the author of articles on the effects of electric currents on blood pressure, on the causes and treatment of inebriety, the deterioration of vision during school life, and on morally defective

children, and she wrote a text-book for nurses on medical electricity and light. She was well known as an uncompromising supporter of women's suffrage and of other movements for the benefit of women and children. Miss Sayer's death will be mourned by a wide circle who recognised her pertinacity of aim and honesty of purpose.

Public Health Services.

WILLESDEN MUNICIPAL HEALTH SERVICE.

THE dispute[1] between the Willesden Urban District Council and the Willesden Branch of the British Medical Association has come to an end, the approval of the Ministry of Health having been received for the Council's maternity and child welfare scheme, by which children under school age requiring treatment will be dealt with in the same way as school-children. The scheme is as follows:—

Medical Examination and Advice.—Expectant mothers, nursing mothers, and children under five years may attend the municipal clinics for medical examination and advice, except mothers and children known to be under the care of a private medical practitioner. Mothers known to be under such care may, however, attend lectures or other educational meetings at the clinics.

Clinic Treatment.—(1) Expectant and nursing mothers and children under five years found to be suffering from nits or vermin may be treated at the clinics. Expectant and nursing mothers found to be suffering from minor ailments to the limited extent indicated in Memoranda M. and C.W. 14 and M. and C.W. 4 may be treated at the clinics strictly in accord with the provisions of these memoranda. (2) Expectant and nursing mothers found to be suffering from definite disease or deformity, or conditions other than minor ailments, shall be referred to a private medical practitioner. Children under five years found on examination to be suffering from defects requiring attention, other than nits or vermin, shall be referred to a private medical practitioner. (3) Children under five years found to be suffering from minor ailments, defective eyesight, enlarged tonsils and adenoids, or ringworm (for X rays), and in respect of whom a postcard has not been received from a private medical practitioner intimating that he has undertaken the treatment of the case, and who for good and necessitous cause shown cannot obtain treatment from a private medical practitioner or general hospital, may be treated at the clinics.

Home Confinements.—In cases where the economic circumstances of the family do not exceed the minimum scale figures, midwives, maternity nurses, and home helps are provided for confinements at home, and home helps are provided in connexion with hospital confinements or illness in the expectant mother.

The scheme is practically what the Willesden Division of the B.M.A. have asked for, and is now under the supervision of the chairman of the Public Health Committee and Hospital Subcommittee (Dr. G. W. R. Skene) and the chairman of the Children's Care Committee (Dr. W. Lock), both of whom are also members of the Divisional Executive Committee. These two medical men are largely responsible for the carrying through of the scheme in face of considerable difficulty.

MENTAL HOSPITALS SERVICE.

FOUR COUNTY AND BOROUGH HOSPITALS.

THE annual reports of four county and borough mental hospitals[2] recently published have many features in common, and deal with several matters of medical and public interest. It is, perhaps, not out of place to comment on the very brief and formal style which characterises them. It is frequently difficult to gain from them any clear picture of the work which it is their purpose to record. This must always appear as a missed opportunity of enlightening the public, and a few paragraphs which do no more than retail the main statistics in another form, and record minor structural changes and formal acknowledgments, can hardly be said to do justice to the vast amount of patient and careful work performed by the staff of such institutions.

Much of the important information in these publications is to be found in the reports of the Commissioners, who may express gratification at notably successful features of the hospital, or indicate directions in which some change is desirable. In three of these reports (the exception being West Humberstone) such recommendations are comparatively numerous, and are of a similar nature in each. The patients' diet (which usually costs about 5*s.* per head per week) is accused of monotony: a breakfast of bread and margarine and tea is the meal to which this comment is chiefly directed. In one case the women received this diet, whereas the men were given porridge and milk. The clothing, particularly of the women, requires improvement; it is pointed out that if patients had more reason to take some pride in their appearance, the effect, both on the clothing itself and on the wearers' well-being, would be far from negligible. In one case it appeared necessary that more tooth-brushes should be provided, and that care should be taken to mark and preserve them for individual patients. Another matter upon which comment is made is the degree of patients' freedom. The doors into the airing-grounds should be left open for longer daily periods; windows so constructed that to open them widely is impossible give an unnecessary sense of confinement; more patients should be allowed liberty in the grounds and outside them; more should be allowed out on trial, and such patients should receive a money allowance to enable them, if possible, to make a new start in life. Other suggestions are that letter-boxes should be provided in each ward, the key being kept by a medical officer, and that more cards and other games should be available. In two of the hospitals no dentist attended regularly. At Worcester, the post of third assistant medical officer has been vacant for some months, and a Commissioner expresses surprise that no married quarters are available for any medical officer other than the superintendent. The committee are considering the desirability of providing such married quarters, of improving the water-supply (to which two deaths from paratyphoid are attributed), and of reconstructing part of the male side to permit of proper accommodation for recent and recoverable cases. At West Humberstone a dentist has been appointed and an X ray plant installed. An additional medical officer is to be appointed whose time will be devoted chiefly to pathological work. Further innovations are the keeping of case-sheets in the wards themselves, and the provision of rooms where interviews or psychotherapy can be undertaken in private.

These improvements and defects are worthy of comment, in that many of them are engaging the attention of mental hospital committees throughout the country. It is foolish to deny that such defects are common to a large proportion of county and borough mental hospitals, and on the other hand, it is worthy of record that some are being remedied. The difficulty which in every case stands in the way of improvement is money. Organisation and treatment are as nearly perfect as the resources of the institutions permit, but the amenities which characterise life in a hospital for private patients, and play no small part in promoting recovery, can only be provided if the local authorities consent to an increase in expenditure. On these lay bodies rests the responsibility of "asylum reform."

SCHOOL MEDICAL SERVICE.

Dewsbury.

THE school medical officer makes some interesting observations in connexion with the nutritional condition of the school population in Dewsbury for 1922 as compared with 1921. In 1921 the percentage

[1] THE LANCET, 1921, ii., 1124; 1922, i., 150.

[2] The annual reports of the County and City of Worcester Mental Hospital, Powick; Cumberland and Westmorland Mental Hospital; City of Leicester Mental Hospital, West Humberstone; and Borough Mental Hospital, Middlesbrough.

of children with so-called malnutrition was practically the same for all ages. In 1922 a progressive deterioration is shown as both boys and girls advance in years.

"The comparatively big difference in the 5-year old group as compared with the 8-year old group is hard to account for, but evidently during the three intervening years some cause or causes have been in operation affecting adversely the normal rate of development. Perhaps the zymotic diseases play the important rôle, as they are more liable to attack children between 5 and 10 years of age. Again, the 8-year old group was born in 1914, and the children were therefore affected by the food shortage of 1917–18."

Obviously the latter explanation ought to have affected the figures for 1921 as well as those for 1922. All school doctors and teachers have noticed the difference in the groups of children entering school each year; one year there will be a fine, healthy crop of children and the next year a poor one. Dr. C. J. Thomas in 1905 investigated very thoroughly groups of children born in different years who had attained the ages of 8 to 13. He found that children born in a year with a high child mortality rate were poorer physically and mentally than children born in a year with a low rate. The high mortality rate may have been produced by various causes—a hot, dry, dusty summer with epidemic diarrhœa, or a year when infective disease was rife, carrying off a large number of children and weakening others. The younger the child the greater the effect of any debilitating influence on growth. Out of a total of 2504 children inspected in the routine group, 563 required actual treatment; 309 were found suffering from malnutrition, 53 from skin disease, 207 had enlarged cervical glands (non-tuberculous). Of 1434 inspected by the dentist, 1171 were referred for treatment, and 643 actually treated. Dr. O. M. Holden reports that the accommodation at the baths is inadequate for the needs of the school-children and the inhabitants of the town, and urges an increase of washing facilities.

Warwickshire.

The school population here is about 37,500, distributed between 314 schools, compared with 319 in 1921, the reduction being due to the amalgamation of departments in several schools with a view to economy of teaching staff. During the year 12,053 routine medical examinations have been made, and of these 16 per cent. were referred for treatment. At the school nurses' examinations of 15,660 children 10·3 per cent. were found with unclean heads, a slight improvement on the 14·8 per cent. found in the previous year. Dr. A. Hamilton Wood finds it very disheartening to have to record that after 14 years of medical inspection so little attention is paid by parents and teachers to the uncleanly condition of children's heads, and says that too often the question is regarded by the head teacher as a matter for the school doctor and nurse, and one in which the teacher is not concerned. He finds in those schools where the teachers take an active interest in such matters that a high standard of personal cleanliness is obtained. Ringworm incidence, although about a hundred cases less than last year, is high, amounting altogether to 435 cases; 50 of these were given X ray treatment. Following-up is undertaken entirely by whole-time health visitors in their capacity as school nurses, to which they devote one-third of their time. This scheme appears to be working well. During the year they kept under observation 10,108 cases, treatment being obtained for 8948 of these. There were 223 fewer cases of enlarged tonsils and adenoids recommended for treatment during 1922 compared with 1921, and only £18 was spent in connexion with the provision of free meals for necessitous children living in the outskirts of the city of Coventry, as against £160 for the previous year. The reason for this is not clearly set out. This report is presented in foolscap form, and is somewhat unwieldy and difficult to handle.

EPSOM COLLEGE.—Founder's Day celebrations will be held on July 30th, when Lord Muir Mackenzie will distribute the prizes.

Correspondence.

"Audi alteram partem."

THE BEST DENTAL ANÆSTHETIC FOR CHILDREN.

To the Editor of THE LANCET.

SIR,—Mr. S. F. Rose's article in your issue of June 23rd, and Dr. H. Hilliard's letter in that of July 7th, prompt me to put forward the claims of nasal nitrous oxide and oxygen as a satisfactory anæsthetic in dental operations on children. Mr. Rose says that children take gas badly; Dr. Hilliard suggests that this is because they will not stand deprivation of oxygen. Why, then, not gas and oxygen?

The disadvantages of ethyl chloride as a dental anæsthetic in children, in comparison with nasal gas and oxygen, are, to my mind, that firstly, it is probably less safe; secondly, recovery is slower and after-results more likely (important points for a busy dentist, as well as for the patient); thirdly, it is less pleasant to take (with the result that the child is more likely to dislike any subsequent administration), and fourthly, the available anæsthesia is shorter. Mr. Rose advises immediate second or third doses to complete a difficult operation. The mental anguish and fear attending such a procedure in some children is, I am sure, very great, and I consider it unjustifiable unless it is absolutely unavoidable.

Undoubtedly children are more difficult subjects for nasal gas-oxygen than are adults, but nevertheless satisfactory results can be obtained. Children almost invariably induce quietly and easily without any contact between nose-piece and face being necessary, with the result that they usually do not mind the anæsthetic. Continued administration is the more difficult part, with a child's active reflexes, but, nevertheless, with experience, more satisfactory results than with ethyl chloride, as regards length of operation time and quick recovery, can almost always be obtained.

In unruly children, in whom cavity preparation is difficult, nasal gas-oxygen is a method offering a chance of completing work otherwise almost impossible. I can recall the case of a boy of 6 or 7, otherwise almost unapproachable dentally, in which three cavities were prepared and temporarily filled during an anæsthesia of about 20 minutes.

I never give ethyl chloride for dental work unless there be most unusual circumstances demanding it. I have only given it, in dentistry, once in the last three years, and then because the child was so spoilt and unruly that it was the only method in which he could not smash the apparatus. Such cases are rare.

I am, Sir, yours faithfully,

Harley-street, W., July 10th, 1923. STEPHEN COFFIN.

L'AFFAIRE SPAHLINGER.

To the Editor of THE LANCET.

SIR,—In writing to give you my personal opinion of the Spahlinger treatment, I cannot do better than quote the following case of my own:—

A man, aged 32, suffering from tuberculosis of the left kidney, the right kidney being sound (diagnosis by cystoscopy and ureteral catheterisation), and from non-fistulous right tuberculous epididymitis, had left nephrectomy performed on Oct. 30th, 1919, with no untoward after-effect. In May, 1920, began almost constant hæmaturia, with exaggeration of vesical symptoms. In the following July occurred left epididymitis, which opened rapidly by means of two fistulas. The right epididymitis increased, but did not become fistulous. I saw the patient again in August, when hæmaturia was still almost continuous. Having ascertained by means of the cystoscope that the latter was due to the remaining kidney, I decided that the tuberculosis must be localised on that side, and determined, in view of the gravity of the case, to try the Spahlinger treatment. From August 20th to Oct. 27th I gave several injections of serum (B.M.). There was a violent febrile reaction (max. 39·6°–40·2° C.), and painful reactions took place in the left testicle

and in the operation wound, with increased hæmaturia, at the beginning of September. The hæmaturia ceased on Sept. 6th, and up to the present (July, 1923) has not reappeared. During the injections there was much suppuration from the fistulas in the left epididymis.

From the date of the last injection, Oct. 27th, the patient's general condition gradually improved. He was a mechanic, and in the spring of 1920 his bad health had forced him to give up his work; he is now working full time, with good general health, good colour, &c. His urine is opalescent with phosphates and muco-purulent débris; micturition is painless and takes place once nightly. The right epididymis is painless, rounded in shape, and the size of a nut; the nodular left epididymis is adherent to the skin of the scrotum at the level of the two dried-up fistulas.

It seems to me impossible to deny the good effect of the treatment in this case. The least that can be claimed is a distinct modification of the clinical course, and, of course, of the tuberculous lesion in the second kidney, which at the time of the nephrectomy was healthy. The patient was doubtless unfit to resist the second attack of the disease, and his general condition was rapidly growing worse. Since treatment, and in spite of resuming work, the evolution of the lesions appears arrested in both kidney and epididymis, and his general condition is that of a healthy man.

I am, Sir, yours faithfully,

CHARLES PERRIER,
Privat-docent, Chirurgien-Adjoint à l'Hôpital Cantonal, Geneva.

July 3rd, 1923.

To the Editor of THE LANCET.

SIR,—I have had the privilege for the last eight years of having treated a number of cases with Mr. Spahlinger's partial sera and with his vaccines. Although I have never used the "complete" serum, I rapidly came to the conclusion that Spahlinger's partial sera produce most favourable results in the treatment of acute or severe tuberculosis, results which no other hitherto known treatment could give. A series of cases, mostly in an advanced and rapidly progressing stage of the disease when they came under my care, were treated with these antitoxins and are alive to-day, and engaged in their normal work. I quote four typical interesting cases:—

CASE 1.—F. L., male, aged 25. Patient had coxalgia at 9 years of age. Treated by extension and sea-baths, as a result of which condition improved. There remained, however, a permanent focus in the track of the fistulous opening. Up to the moment when Spahlinger's treatment was commenced, the patient had continual relapses, which necessitated frequent medical and surgical intervention. Three operations took place; the last one, which was of an urgent nature, was performed in 1915. It necessitated making an incision of about 8 inches and inserting four drainage-tubes. In order to dry up the suppurating lesion and to avoid abscess formation, which occurred after each preceding operation, patient was in 1915 treated with Spahlinger's vaccine. Cicatrisation of the wound rapidly took place and the suppuration disappeared. Treatment was continued for eight months with one interruption of a few weeks.

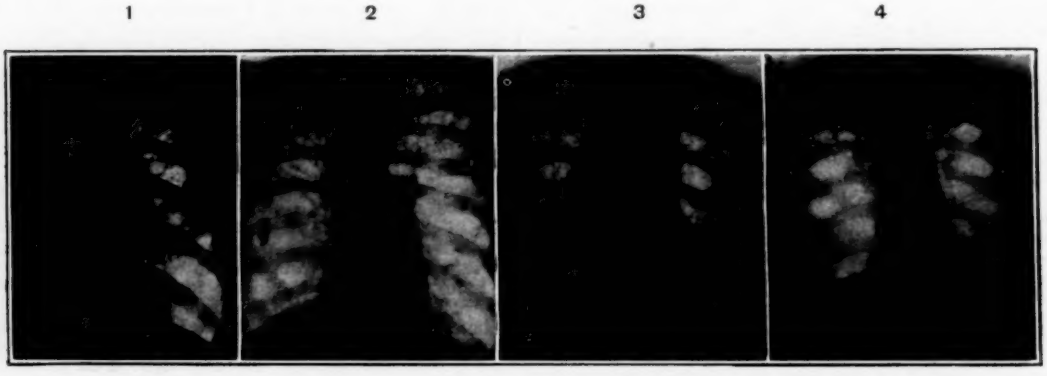
Examination in June, 1923, shows complete arrest of the disease. It is interesting to note that before Spahlinger's treatment was commenced, abscesses formed periodically, necessitating continual care and preventing patient effecting a complete recovery. Since receiving the course of vaccine in 1915, patient has had no relapse whatever and for seven years has now been able to lead a normal life.

CASE 2.—G. V., male, aged 30. Four years ago patient had a severe hæmorrhage. Early in 1913, while working at Algiers, he suffered from violent cough, repeated attacks of hæmoptysis, weakness, breathlessness. Pulmonary tuberculosis was diagnosed. He received hospital treatment at Algiers with ensuing improvement. From March until August, 1914, condition became slowly worse. Sent back to France. When patient came under my care in July, 1915, his chest examination showed extensive bilateral fibro-caseous infiltration with softening well marked at apices. His cough was troublesome, the daily expectoration amounted to 8 oz., and T.B. were present in large numbers. Slight rise of evening temperature. Frequent hæmorrhages. Loss of weight 8 lb. during the last six months (normal weight unknown). Night sweats. Dyspnœa very troublesome. No appetite. Anæmia. Fainted on slightest exertion.

After a 12 months' course of Spahlinger's serum and vaccine the signs in chest had completely dried up, and general condition had much improved, when patient had a sudden attack of hemiplegia, with a positive Wassermann. He died the week following from a syphilitic gummata in the brain. His post-mortem revealed extensive scar tissue throughout both lungs.

CASE 3.—H. N., male, aged 23. Patient contracted bronchitis in 1913. Cough ever since. In July, 1914, had hæmorrhage. In November, 1914, sputum examination showed T.B. + and pulmonary tuberculosis was diagnosed. He had a course of tuberculine injections at the beginning of 1915. Hæmorrhages in March and April. When patient commenced Spahlinger's serum treatment in May his chest examination showed infiltration of right upper and middle lobes and also at left apex. He complained of cough, profuse expectoration, often blood-stained, T.B. +, loss of weight, night sweats, temperature 101·1°F., pulse 110, dyspnœa, indigestion, diarrhœa, vomiting.

By July marked improvement had taken place, and treatment was stopped temporarily for want of antitoxins. In August new increase of activity, severe and prolonged attack of hæmorrhages. In November condition had become very critical, and a fatal termination appeared imminent. Temperature, 101·2–102·4°; pulse, 120; cough extremely troublesome; expectoration purulent, amounting to 9 oz. daily, numerous T.B. present, extreme emaciation, profuse night sweats, much dyspnœa, diarrhœa. Condition of collapse. Examination showed massive disease of the whole of right lung and scattered infiltration on left side. Serum treatment was resumed and antitoxins given in large doses. By end of December a slight but marked improvement had taken place. Patient could eat a little food and hæmorrhages had stopped, but he was still too ill to sit up in bed for thorough auscultation. End of February, 1916, he was allowed to get up. Temperature was then normal. Condition improved rapidly. In December, 1916, the disease was completely arrested, nevertheless serum



Radiograms: 1. Case 3 when marked improvement had taken place. 2. Case 3 after recovery. 3. Case 4 when partial serum treatment was commenced. 4. Case 4. Radiogram taken one year after.

treatment was continued until end of 1917. Examination in 1923 shows that there is no trace of active tuberculosis in the chest. Patient has no cough and no sputum. His weight is normal (41 lb. increase since December, 1915). There is still some dyspnœa present. He has been at work as a journeyman tailor since 1917 up to the present day.

CASE 4.—S. Y., woman, aged 42. Tuberculosis in family history. Three sisters, one brother, and husband died of pulmonary tuberculosis, and her only child died of tuberculous meningitis. Patient contracted pleurisy and pneumonia in 1916. Went to sanatorium. In November, 1917, T.B. were found in sputum. Hæmorrhages in June, 1919. Returned to sanatorium. In January, 1920, went to Leysin and in October to Davos, where she was diagnosed as a cavernous form with marked process of caseation; she remained there until March, 1921, gradually getting worse. When patient came under my care in April, 1921, chest examination showed considerable caseous infiltration at R. upper lobe and infiltration at lower lobe. Rapidly spreading disease at L. side with caseous infiltration of two-thirds of L. upper lobe and also infiltration at base of lower lobe. Active softening at both apices. Her cough was troublesome. The yellowish, purulent expectoration amounted to 5–6 oz. daily, with numerous T.B. present in it. Pulse 90–110. Loss of weight 1 st. 5 lb. Hæmoptysis. Much dyspnœa.

After two years of Spahlinger's partial serum treatment the disease is now (June, 1923) completely arrested. Temperature, pulse, and weight normal. There is a little cough and phlegm in the morning, but since the beginning of 1923 the sputum examination has always remained negative. Patient is very well and leads a normal life. She is still receiving partial serum injections once a week.

Some of the cases are still receiving once or twice a week an injection of partial serum, while awaiting a course of active immunisation which, unfortunately, is unavailable at present. On the other hand, the 11 patients I treated with Spahlinger's vaccine in 1915–16 have made a lasting recovery and have had no treatment whatever since their discharge. Two of these patients were suffering from tuberculosis of the bones, duly confirmed by bacteriological tests, and nine were pulmonary cases, with T.B. present in each sputum examination. Unfortunately three of them died subsequently from diseases other than tuberculosis. The remaining cases have been in perfect health for the last seven years. They are able to lead a normal life, engaged in active work, and on no occasion have they shown any signs of relapse.

I am, Sir, yours faithfully,

Geneva, July 3rd, 1923. DR. E. TRECHSEL.

MENTAL HOSPITALS SERVICE.

To the Editor of THE LANCET.

SIR,—In your review of various mental hospital reports under the above title in THE LANCET of July 14th reference is made to The Retreat and to Barnwood House, Gloucester, under the heading "Two Private Mental Hospitals." The two hospitals mentioned are in reality "registered hospitals"—that is to say, establishments managed by a voluntary committee, none of whom have any pecuniary interest in it. In this respect they are thus precisely on the same footing as the Scottish Royal Asylums. As the phrase "Private Mental Hospital" properly refers, not merely to institutions for private patients, but to those which are managed for the profit of some person or company, I think it worth while to draw your attention to the inaccuracy.

I am, Sir, yours faithfully,

HENRY YELLOWLEES.

Lamel Beeches, York, July 17th, 1923.

*** The heading was not intended to convey more than that the two hospitals mentioned were for private patients.—ED. L.

THE LINGUAL TONSIL IN RELATION TO THE SINGING VOICE.

To the Editor of THE LANCET.

SIR,—In the condensed report of the discussion on Mr. Seymour Jones's interesting paper on the Lingual Tonsil in THE LANCET of June 23rd, p. 1265, some speakers suggested that too much importance might be attributed to it. There is, however, one of its aspects—namely, the effect of its enlargement on the singing voice—which I think is of considerable importance. Briefly, this condition interferes with the elevation of the epiglottis, which accompanies, and is probably essential to, the clear production of the higher notes. Removal of sufficient of the redundant portion to relieve the pressure on the epiglottis has been followed by increased comfort in singing, and by the gain or recovery of several notes. The point receives consideration in my lecture[1] on "Some Disturbances of the Singing Voice."

I am, Sir, yours faithfully,

London, July 14th, 1923. JAMES DUNDAS-GRANT.

THE RÔLE OF THE TOOTH-BRUSH.

To the Editor of THE LANCET.

SIR,—The letter of Sir John O'Conor, published in THE LANCET of June 2nd, has been read with interest, but also with great surprise. It is certainly most astonishing to find any one willing to make such sweeping statements that the daily use of a bristle tooth-brush is harmful, and at the same time offer nothing to corroborate his views. The fact that the gentleman states that dental caries and pyorrhœa come from the use of the tooth-brush shows the lack of careful investigation on his part. The correct brushing of the teeth and gums not only removes food debris, but strengthens and hardens the gums and stimulates the blood-supply to the teeth.

Had Sir John O'Conor stated that the ailments he enumerates are largely due to the use of foods which do not need mastication he would have more closely approached the truth. Hard and dry foods requiring mastication and insalivation will give the necessary exercise to dental organs and bring into proper play those functions which will keep the teeth and adjacent tissues in normal, healthy condition. Cooked foods, tinned foods, sloppy foods, bread made of wheat, from which all the most important elements have been removed, oatmeal drowned in milk and smothered with sugar, jams, sweets, mashed potatoes, and juicy tender flesh which dissolves and does not need much effort to masticate, these are far more productive of pyorrhœa and dental caries, gastric pollution, and appendicitis than are all the tooth-brushes ever made since time began. In the conditions and environments that men live to-day, the tooth-brush is a necessity for the maintenance of mouth hygiene. In the United States we are collecting a vast amount of valuable data showing the importance and value of using the tooth-brush three and four times a day.

The oral hygiene movement has taken a firm hold in our country and there are signs that the people of England are taking up this subject with zeal and thoroughness. In the city of Bridgeport, where the daily use of the tooth-brush has been taught in every public school for the past five years, and where every school child has a tooth-brush, a large reduction of children's illnesses has already been recorded. A large reduction of dental caries and a 50 per cent. reduction in backward children has also been secured. During the past eight years over 50,000 cleansing operations have been given to the employees of the Metropolitan Life Insurance Company. Instructions are also given for the proper use of the tooth-brush. In all these years and for all these thousands of persons there has not been one case of pyorrhœa, dental caries, gastric pollution, appendicitis, or organism decomposition that has been traced to the daily use of the tooth-brush. Nay, further, it can be shown that the improvement in general health has been so marked, that whereas, during the first four years it was optional with the employees to have their teeth cleansed, now it is a rule of the company that every one of its seven thousand employees must have two cleansings each year. Dr. Geis and Dr. Kleiger of Columbia University found that one milligramme of

[1] Clinical Journal, 1913, xlii., 504–5.

tooth scrapings in an uncared for mouth contained from five to eight hundred million bacteria by count and weight, whereas, in one milligramme of tooth scrapings in a fairly clean mouth there were approximately only five million. It can be safely stated that the bacteria found in a clean mouth are to all intent and purpose practically harmless, whereas those that are found in a dirty mouth become virulent and dangerous. Another factor is the question of the health of the soft tissues of the mouth. When the soft tissues of the mouth are in a normal condition, they are practically impervious to bacterial life, but when the gums become inflamed, they then become open gateways for the entrance of disease germs into the circulatory system of the body.

Nothing will bring about more quickly an inflamed condition of the soft tissues surrounding the teeth than the lack of proper and sufficient mastication upon hard foods and the presence of decaying particles left from mushy meals. The formation of calcium deposits also causes inflammation of the gums. By the proper use of the bristle tooth-brush and tooth-powder and rinsing the mouth with lime-water after cleansing will do more for the hardening and strengthening of the gums, the prevention of pyorrhœa, and dental caries than any other known remedy. I have yet to see a patient who uses a badger-hair tooth-brush who did not have a mouth reeking with food debris a week old, and with inflamed gums and pus discharge. Until the food habits of the entire civilised world are changed, bristle tooth-brushes are a necessity for the maintenance of mouth hygiene.

I am, Sir, yours faithfully,
THADDEUS P. HYATT, D.D.S., F.A.C.D.

New York City, July 5th, 1923.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Rear-Admiral J. Shand will be succeeded by Surg. Rear-Admiral J. F. Hall in charge of the Royal Hospital, Malta.

Surg. Vice-Admiral Sir R. Hill, Director-General of the Medical Department of the Navy, to be Honorary Surgeon to His Majesty, vice Inspector-General of Hospitals and Fleets W. H. Lloyd, deceased.

Surg. Rear-Admiral G. A. Dreaper is placed on the Retd. List.

Surg.-Capt. A. Gaskell to be Surgeon Rear-Admiral.

D. H. Kernohan is entered as Surg. Lieut. for short service.

ROYAL ARMY MEDICAL CORPS.

Temp. Hon. Lt.-Col. T. E. K. Stansfield relinquishes his commn. and retains the hon. rank of Lt.-Col.

Lt.-Col. A. F. Carlyon, late R.A.M.C., half pay, retires on account of ill-health contracted on active service.

The undermentioned retire on ret. pay: Lt.-Col. G. H. Goddard on account of ill-health; Maj. R. J. C. Thompson on account of ill-health contracted on active service (and is granted the rank of Lt.-Col).

Capt. R. W. Galloway relinquishes the temp. rank of Maj.

Temp. Capt. F. J. P. Daly relinquishes his commn. and retains the rank of Capt.

ARMY DENTAL CORPS.

Lt. N. H. Medhurst to be Capt.

TERRITORIAL ARMY.

Maj. J. V. Bates (late R.A.M.C.) to be Capt., and relinquishes the rank of Maj.

Lt. J. W. Macfarlane to be Capt.

Lts. J. R. Oddie (from 5th Bn. West Yorkshire Regt.) and A. Badenoch (late R.G.A., T.F.) to be Lts.

TERRITORIAL ARMY RESERVE.

Lt.-Col. E. J. D. Taylor (from 5th Southern General Hospital) to be Lt.-Col.

Capt. P. E. H. Adams (from 3rd Southern General Hospital) to be Capt.

INDIAN MEDICAL SERVICE.

Lt.-Col. H. Ainsworth to be Colonel.

The King has approved the retirement of Lt.-Col. S. H. Burnett.

SIXTH CONGRESS OF THE INTERNATIONAL SOCIETY OF SURGERY.

THE International Society of Surgery is holding this week, July 16th to 20th, its Sixth Triennial Congress, the first to be held in this country, at the house of the Royal Society of Medicine, at 1, Wimpole-street, under the presidency of Sir William Macewen, F.R.S.

MONDAY, JULY 16TH.

On Monday members obtained detailed programmes for the week; only a business meeting of the international committee took place. On that evening a conversazione was held at the University of London; members of the Society and ladies were received by Mr. H. J. Waring, Vice-Chancellor of the University, and Mrs. Waring, and had opportunities of renewing old acquaintances and making new ones. The band of H.M. Scots Guards played musical selections and light refreshments were provided.

TUESDAY, JULY 17TH.

INAUGURAL SESSION.

On Tuesday, at 11 A.M., the inaugural session was opened by H.R.H. the Prince of Wales. His Royal Highness was received by Sir Wm. Hale-White, President of the Royal Society of Medicine, and signed the roll as an Honorary Fellow. He was then welcomed by the President of the Congress and presented with the Society's medal in gold. The Prince referred to the international aspect of the gathering, now for the first time meeting in Great Britain in the house of a Society of which he was an honorary member, and welcomed the delegates and members from other countries. Modern surgery was, he pointed out, the outcome of international coöperation, since it owed its inception to the work of Pasteur and Lister. A special welcome was extended to Dr. W. W. Keen, of Philadelphia, the doyen of the Congress. Lord Curzon welcomed the delegates on behalf of the Foreign Office. Such meetings, he said, while they might produce fruitful rivalry between nations, were a valuable part of the machinery of international amity. He wished he could apply surgical methods to the ills of the body-politic with the same accuracy and prospects of success. Mr. Neville Chamberlain hoped the Congress would be attended with results fruitful to mankind. Already no more useful advance had been made in any branch of science than in surgery; much progress had been achieved in the late war, notably in plastic or reconstructive surgery. Illness resulted in economic loss, and anything that tended to cure disease or shorten it deserved the gratitude of all nations. Mr. J. E. H. Roberts, the British delegate, briefly welcomed foreign delegates, and thanked them for choosing London as the venue for the Congress. The following delegates were then presented to His Royal Highness: Dr. Bruce (Canada), Dr. Zachariсky (Czecho-Slovakia), Dr. Hansen (Denmark), Dr. Petridis (Egypt), Prof. Hartmann (France), Dr. Koch (Holland), Dr. Allessandri (Italy), Dr. Nicolaysen (Norway), Dr. de Zawadski (Poland), Dr. Kayser (Sweden), Dr. de Quervain (Switzerland), and Dr. MacArthur (United States). Prof. Willems, President of the International Committee, after thanking the Prince of Wales for his presence and gracious words, pointed out that this was the first occasion upon which the President was a subject of the country where the Congress was held. A list of the members whom the Society had lost since its last Congress was read.

Dr. L. Mayer, Secretary-General, cognisant of the Prince of Wales's knowledge of that language, spoke in French, and thanked the Prince and the Ministers for their presence at the inaugural session. He referred to the lamented death of Sir Charles Ryall, whose place as organising secretary had been taken with conspicuous success by Mr. Roberts, to whom, with Sir

D'Arcy Power, the thanks of the Congress were due for the splendid organisation. The President of the Society, Sir William Macewen, delivered an address in which he suggested that much could be learnt about human anatomy from a study of animals. The growth of a stag's antlers, for instance, provided a fascinating subject which might well provide an insight into the growth of bone. In three months the stag produced a complicated pair of antlers composed of solid bone covered by a vascular "velvet." Yet these bony excrescences grew from the frontal bone which was covered by pericranium, a membrane which, even according to the orthodox view of the osteogenetic function of periosteum, had only the most meagre bone-forming powers. In a few months more the antlers underwent a process of aseptic sclerosis and death, and were finally shed, this being contrary to Metchnikoff's theory that senility of tissues was the result of bacterial invasion. Histological examination of the antlers made it possible to recognise the osteoblasts by their form, and to trace them through all the stages of growth and shedding. Sir William Macewen was sceptical of the theory that mesoblastic cells had the property of converting themselves into any other form of mesoblastic cell, and stated his belief that bone-cells were invariably developed from bone-cells, and that certain bone-cells had inherited greater osteogenetic power than others. It was well that it should be so, for otherwise bony injuries would produce serious deformities; 40 years ago he had been able to prove that bone grew from bone, by reproducing a humerus from pieces of bone removed from other human subjects.

FIRST SCIENTIFIC SESSION.

The first scientific session, held on the afternoon of Tuesday, was devoted to the surgery of the endocrine glands.

Surgery of the Thymus in Early Life.

Dr. Victor Veau (Paris) said that enlargement of the thymus, which was responsible for many deaths in infancy, was amenable to surgery. Thymectomy was an easy operation, devoid of any serious risk and curative if the diagnosis were correct. But as there must always be a little doubt about the diagnosis and as a similar result could be obtained by one or two doses of X rays he preferred now to employ radiotherapy rather than surgery. The X rays were not altogether devoid of risk; should this risk prove to be serious he would revert to surgery.

The Splenic Syndromes.

Dr. W. J. Mayo said that the spleen was chiefly a mechanical filter, which removed degenerated red cells and toxic agents from the blood. It sent them on to the liver for further detoxication; it also developed lymphocytes. The function of the normal spleen was not important, but the diseased spleen was a serious menace to the constituents of the blood and to the liver. The spleen did not initiate the pathologic processes with which it was concerned, but acted as a secondary agent. The removal of the spleen in the splenomegalies and in certain blood conditions removed a pathologic agent. A spleen that was chronically enlarged and did not yield to reasonable medical treatment should be removed early, unless in the individual case there were contraindications to splenectomy.

Two hundred and ninety-five splenectomies had been performed at the Mayo Clinic, and all the deaths were classified as being due to the operation.

Splenomegalies due to Micro-organisms.

Cause.	No. of splenectomies.	Deaths.	Results.
Chronic syphilis	8	1	Good in 7 cases.
Tuberculosis	4	1	,, 3 ,,
Pyogenic organisms	14	4	,, 6 ,,
Splenic anæmia	82	9	,, majority.

Hæmolytic Icterus.—Forty-two splenectomies were performed for this condition, one died in hospital, and 40 recovered perfectly.

Pernicious Anæmia accounted for 57 splenectomies; there were three deaths in hospital, but no deaths amongst the last 40 patients prepared by blood transfusion, and the improvement in all was more prolonged than in that following blood transfusion alone; there were no cures, but the abnormal blood picture improved. He thought splenectomy in cases of pernicious anæmia was only justified in a limited number of carefully selected cases.

Polycythæmia Rubra Vera.—One splenectomy was performed for this condition. There was great improvement. The patient was able to work.

Hæmorrhagic Purpura (essential thrombohæmia).—One splenectomy was performed with good result.

Splenomyelogenous Leukæmia.—Twenty-nine splenectomies were done for this disease with only one death in hospital, and great temporary benefit in 28. The condition of the blood was improved, but was not normal. The other 59 miscellaneous cases were not discussed in this paper.

Some Points in the Surgery of the Suprarenals.

Drs. Ch. Willems (Liége) and N. Goormagtigh (Gand) said: In classifying suprarenal tumours, the morphological, functional, and embryonic distinction between the cortex and the medulla was most important. The "cortico-surrénalomes" were the most frequent, while the tumours of the medulla were most rare and belonged to two groups—those of nervous origin, and those of chromaffin origin.

The syndrome of Sargent-Bernard presented an acute form corresponding to the destruction of the glands, and a less serious form which probably corresponded to partial lesions. This was, however, controversial. The former had the appearance of an intoxication, while the latter form presented as principal symptoms hypotension and asthenia. The excision of one of the healthy suprarenals, with the idea of lessening the amount of suprarenal substance, had been performed, especially for epileptic fits. The results obtained were interesting, but the problem was far from solved. The removal of the suprarenal had also been performed in cases of hypertension, so as to reduce the suprarenal functions. Of the two ways which had been used for the extirpation of the healthy suprarenal, the transperitoneal one was not the handiest in spite of its appearance. The retroperitoneal way, according to the technique of the authors, was more advisable, being more accurate and giving the required view.

Pituitary Surgery.

Mr. Percy Sargent (London) said that considerable progress in pituitary surgery had been made since Victor Horsley's pioneer operations of more than 20 years ago, but there was still much to be learnt. Operation might be directed to (*a*) influencing the secretory output, (*b*) relieving local pressure symptoms, (*c*) relieving general intracranial pressure. Total removal of a pituitary tumour was impracticable, but partial removal might be of great benefit. In some cases a simple decompression operation was all that could be done, and might be very beneficial, even as regards vision. The causes of failure, in the speaker's opinion, were: (i.) errors of diagnosis leading to misdirected operations; (ii.) massive intracranial extension of the tumour, rendering the case unsuitable for any operation except a palliative decompression; (iii.) operative accident; (iv.) post-operative pneumonia; (v.) in trans-sphenoidal operations, septic infection.

The osteoplastic frontal approach was the procedure chosen in most cases; the trans-sphenoidal operation, although presenting certain advantages, was incapable of affording more than partial and transient relief. Advance in pituitary surgery must come about through improved diagnosis, wiser selection of cases, and earlier operations.

Surgery of the Thymus.

Dr. Lorthior (Brussels), after a brief reference to the possible function of the thymus gland, went on to discuss the indications for its removal, the chief of

which was thymic asthma; there were other indications, such as laryngismus stridulus, respiratory embarrassment leading to debility and arrested mental development, intolerance of anæsthetics, &c., and their number was increasing. After removal of the thymus there was often a striking improvement in the general condition of the child, in its intelligence, vitality and rate of growth, resembling the effect of removal of adenoids. The operation was conducted as follows. After being anæsthetised (the reporter's preference was for chloroform, although other general anæsthetics, ether, nitrous oxide, &c., could be employed) the child was placed in Rose's position and a small incision about one inch in length was made vertically upwards from the suprasternal notch. The muscles having been separated, the thymus in its capsule was seized with forceps when it appeared from behind the sternum during expiration; the capsule was opened and the gland substance proper seized with forceps. From this moment the hold upon the gland by forceps must not be released until the gland had been removed by gentle and patient traction. As each succeeding portion appeared it was grasped with fine Kocher's forceps which provided a fresh hold for further enucleation until the whole or almost the whole gland came away. There was never any appreciable hæmorrhage, the vessels being very small; only very occasionally it was necessary to crush a vessel of unusual size and ligature of vessels was never called for. The operation was completed by closing the skin wound with a few Michel's clips. The mortality of this operation had, up to the present, been nil; it was easily performed and the results had been most gratifying.

DISCUSSION.

Mr. H. Henry (Dublin), who had found that the difficulty in Cushing's nasal approach to the pituitary gland arose chiefly from the variations in the sphenoidal sinus, exhibited an instrument by which he had been able to overcome these difficulties. The instrument consisted essentially of a metal tube attached variably to an apparatus which gave a firm attachment to the hard palate. The tube was passed into the submucous resection wound and guided into position by observations with the X rays, the operation being conducted in the X ray room. When in position the pituitary could be attacked under direct vision by means of instruments similar to those used with the operating cystoscope.

Testicular Grafting.

Dr. Serge Voronoff (Paris) described the objects and technique of testicular grafting which he had now performed in 44 cases in the human subject. After much experiment he had now devised a method which ensured long survival of grafts of fresh chimpanzee testicle into the human tunica vaginalis testis. The results of this method employed since 1920 had been both marked and, up to the present, permanent. The phenomena observed were a lowered blood pressure, reduction of weight in obese subjects, better vision in hypermetropes as the result of improved elasticity of the lens, new growth of hair, and improved muscular power and mental activity. To obtain such results it was necessary to use the testicles of monkeys of full growth and unmistakable virility; where the testes of young monkeys, in whom the internal secretion was not developed, were used no benefit had accrued. This proved that the results were not born of auto-suggestion. He appealed to other surgeons to try the operation when he was convinced they would realise its value.

Mr. Ivor Back (London) had seen Dr. Voronoff's work at Paris and talked with his patients, most of whom were themselves medical men, and was convinced of the value of testicular grafting. The effects of the removal of the testicular secretion by castration were well-known and the restoration of the internal secretion of the testes could, and did, restore many of the functions which decayed with age. The difficulty had been to find a suitable place where the grafts would survive. If placed under the skin or in the peritoneum they were absorbed, but with Dr. Voronoff's present method of implanting the grafts into the scarified tunica vaginalis, where each was anchored by a suture, they survived long enough to obtain a blood-supply; histological proof of this survival was obtained. The chimpanzee was selected as the donor on account of its close relationship to man; the excised testicle was cut into six segments and three were implanted into the interior of the tunica vaginalis of each testicle of the recipients. It was found that grafts of this size became vascularised in about 48 hours and survived. If smaller grafts were used they were absorbed and if larger they were apt to undergo necrosis at least in part.

Thyroid Transplantation.

Dr. A. Kocher (Berne), who had performed thyroid transplantation in 214 cases with only 14 per cent. of failures, described the operation as suitable, in the words of his late father, Prof. Th. Kocher, "for slight cases of thyroid deficiency," and preferable to thyroid medication. The most refractory cases were those of congenital absence of the thyroid, but three out of ten of such cases were improved, in one case sufficiently to take a university degree. The method employed was to implant portions of human thyroid not larger than a cherry, taken preferably from the upper pole of an exophthalmic goitre, into the peritoneum, where they were fixed by suture, or into the medullary cavity of the tibia. Patients must take thyroid before and for a little while after operation or the graft would not survive, while about half the patients had to supplement with thyroid medication after the operation, although the quantity required was always much reduced.

Dr. Froell (Stockholm) described the histology of different varieties of goitre and their associated blood changes. He had found that the pH concentration was high in toxic and low in ordinary goitres.

Use of Insulin in Surgery.

Dr. F. G. Banting (Toronto) said that insulin could have no effect on diabetic gangrene, as this was the result of arterial change; the use of insulin would, however, render the subject sugar-free, and permit of operation for gangrene or for any acute condition, such as appendicitis in a diabetic subject.

Suprarenal Grafting.

Mr. F. C. Pybus (Newcastle-upon-Tyne) described a successful case of suprarenal grafting for Addison's disease. The patient, who had previously been discharged from hospital as incurable and on the point of death, made a striking recovery after having suprarenal (from a healthy adult who died of an accident) grafted into the subcutaneous tissues. The blood pressure rose, pigmentation disappeared, muscular power was restored, and the blood picture, which had previously been that of pernicious anæmia, returned to normal. The man was able to return to light work for three years, when the symptoms recurred, and a fresh grafting was performed; no traces of the original graft could be found at the second operation. A second case in which a suprarenal graft from a male was implanted into a female was unsuccessful, as were also two attempts to graft pancreas into the subjects of pancreatic diabetes, though in one of the latter cases there was a slight and transient lessening of the glycosuria.

Dr. Juracz (Posen) described the effect of stimulating doses of X rays on the suprarenals in a severe case of asthma. The patient, though not cured, was much relieved, and one attack was cut short by the use of the X rays. Attempts to benefit cases of exophthalmic goitre by destructive doses of X rays directed to the suprarenals had also been made, but with less success.

Pituitary Tumours.

Dr. Krinski (Warsaw) described his experience with these tumours, and Mr. A. J. WALTON (London) advocated the frontal approach as the only one by which reasonably good access could be obtained.

The nasal route gave insufficient access to tumours that were generally more intracranial than sella, and carried a risk of sepsis. If approached by Horsley's temporal route the operation was embarrassed by a number of cranial nerves and the internal carotid artery, whereas the frontal route gave excellent exposure when the tumour protruded (as it almost invariably did) in front of the optic chiasma. By this route he had removed pituitary tumours, he believed completely, in seven cases with three deaths following operation and one remote death. The remaining three cases were strikingly improved.

In the evening a reception was held by Sir William and Lady Macewen at the Royal Society of Medicine, in the course of which the President gave a popular lecture on the Growth of Bone.

(To be continued.)

Medical News.

UNIVERSITY OF LONDON: *King's College Hospital Medical School.*—The following awards have been made:—

Burney Yeo Scholarships: G. F. Taylor, Sidney Sussex Coll., Cambridge; M. E. Lampard, Corpus Christi Coll., Cambridge; J. W. Thornton, Magdalen Coll., Oxford; J. A. Eyres, Lincoln Coll., Oxford. Epsom College Scholarship: R. P. Ross, Gonville and Caius Coll., Cambridge. Senior Scholarship and Tanner Prize for Obstetric Medicine: W. P. H. Sheldon. Jelf Medal: F. Brockington. Todd Prize and Medal for Clinical Medicine: F. Brockington. Class Prizes: Diseases of Children and Orthopædic Surgery, W. P. H. Sheldon; Medicine, R. Cove-Smith; Surgery, H. C. Edwards; Obstetric Medicine, F. Brockington; Pathology, C. E. Newman; Forensic Medicine and Psychological Medicine, M. A. Paul; Hygiene, L. H Savin.

University College.—The following awards in the Faculty of Medical Sciences have been made: Bucknill Scholarship (1922), R. L. Midgley; Medical Entrance Exhibitions (1922), E. H. Madge and V. Freeman; Sharpey Scholarship, A. S. Parkes; Cluff Prize, G. F. H. McCormick; Schafer Prize, Dr. Katherine Coward; Gold Medal for Anatomy (Senior Class), G. F. H. McCormick; Silver Medal for Anatomy (Junior Class), H. Awrounin; Gold Medal for Physiology (Senior Class), G. F. H. McCormick; Silver Medal for Organic and Applied Chemistry (General Course), R. M. Sargent. Silver Medal for Pharmacology (General Course), Beatrice G. Smith.

UNIVERSITY OF OXFORD.—*Radcliffe Scholarship in Pharmacology.*—This scholarship has been awarded to Robert Benedict Bourdillon, sometime Fellow of University College.

Theodore Williams Scholarships.—The following awards have been made:—In Physiology: Ormond Alec Beadle, New College; in Human Anatomy: John Samuel Jerome, Christ Church; in Pathology: George Payling Wright, Exeter College.

Beit Fellowship.—John Maurice Hardman Campbell, New College and Magdalen College, chief clinical assistant in the Neurological Department at Guy's Hospital, has been elected by the trustees to a Beit Memorial Fellowship for Medical Research.

UNIVERSITY OF MANCHESTER: MEDICAL DEGREE DAY.—The Vice-Chancellor, Sir Henry Miers, on July 14th, in his address said that the professional training for medicine and surgery was so exacting that the medical student had little or no time for an acquaintance with research. Year after year new subjects were added to the curriculum, but nothing was ever taken away from it. No other degree course was so long or so expensive. The time available for many of the special subjects was so short that their study was necessarily somewhat perfunctory. The medical curriculum was made up of a whole series of incomplete fragments, because the general practitioner might be called upon in the course of his practice to face problems connected with any of them. The medical profession was the most responsible of all professions, and we could not afford to neglect any part of the curriculum. He thought that in future the universities might give to their old students "refresher courses" to which medical men in the district might come without too great a sacrifice of their time. The Dental Board had tried such an experiment last year in providing lectures by eminent specialists at several university centres, of which Manchester was one. There was no place in England where the opportunities of medical training were greater than they were at Manchester with a group of hospitals serving the needs of a dense population.

Degrees were granted and awards made as follows:—

M.D. EXAMINATION.

J. C. Bramwell (awarded gold medal), C. H. Broomhead, Eugenia R. A. Cooper (awarded gold medal), Georgiana M. Duthie (awarded commendation), Ruth E. C. Verney, W. H. Wood (awarded gold medal).

FINAL M.B., CH.B. EXAMINATION (OLD REGULATIONS).

Greta Lowe, Louis Magenstern, Leslie Morris, G. T. Robinson, G. B. Stenhouse, and Geoffrey Talbot.

FINAL M.B., CH.B. EXAMINATION (NEW REGULATIONS).

Arnold Brown, W. B. Bacon, *§Arthur Barlow, Bernard Bowman, §A. J. E. Cave, *‡Albert Coleman, Gordon Crompton, N. L. Edwards, W. E. Fildes, W. A. J. Fleming, ‡E. J. Foulds, ‡Allen Glenn, *‡§Marjorie A. Grant, Evelyn M. Holmes, §K. H. Jackson, A. M. Jones, H. M. Levy, Miles Parkes, Donald Ramage, *‡G. C. Sharp, Margaret Simcock, ‡Wilson Smith, §W. G. Southern, and †§L. J. Witts.

* Awarded second-class honours. † Awarded first-class honours.
‡ Distinction in Forensic Medicine.
§ Distinction in Hygiene and Preventive Medicine.

Obstetrics and Surgery.—William Broadhurst, Madge E. Heywood, Bertha Kahn, A.C.Kelly (distinction in Obstetrics), W. B. McKelvie, Gladys F. A. McLean, Marjorie M. O'Dea, R. W. Parker, W. M. Roberts, Marjorie Robinson, Kate B. Scott, Agnes Seaston, Marjorie Thompson, Sarah Walker, Jane M. Wilde, and Marjorie Youatt.

Obstetrics.—C. N. Aldred, V. F. Lambert, and Thomas Pierson.

Forensic Medicine.—Bessie E. Cook, R. W. Fairbrother, and Thomas Pierson.

Hygiene and Preventive Medicine.—C. N. Aldred, Bessie E. Cook, R. W. Fairbrother, Thomas Pierson, H. F. Shaw, and Robert Slater.

Surgery.—J. F. Bromley.

UNIVERSITY OF DURHAM.—At Convocations held recently the following degrees were conferred:—

Doctor of Medicine.—Neil R. Beattie, Douglas G. P. Bell, Thomas H. Bates, Oliver Colville, Samuel W. Davidson, Charles N. Gover, and Stanley Worthington.

Doctor of Medicine for Practitioners of Fifteen Years' Standing.—William H. Bennett, Philip H. G. Gosse, and William L. Hodge.

Master of Surgery.—Ruth Nicholson.

Bachelor of Medicine and Bachelor of Surgery.—Reginald Armstrong, Helen Austin, Monica F. Bell, William A. Brown, Katherine M. Cellan-Jones, George A. Fothergill, Irene B. M. Green, Phillis Hall, Robert E. Haswell, Gwendolen M. Hunton, Bernard R. Isaacs, Edward H. Jaques, John E. D. Miller, Louis Minski, Doris H. Motyer, Ian M. McLachlan, Francis G. Mundell, George C. Parkin, Georgena L. Philipson, Henry N. Popham, George C. E. Reffell, Leslie F. Richmond, Henry C. Rollin, William O. Rubidge, Evelyn M. Scott, Kathleen Shelton, William F. O. Taylor, Arthur Todd, Pieter J. G. de Vos, Hugh A. Wallace, Alexander J. Watson, and John C. Yeoman.

Bachelor of Hygiene.—Neil R. Beattie.

Diploma in Public Health.—Neil R. Beattie.

Licence in Dental Surgery.—Bernard Benjamin, Walter L. Fleming, George Johnson, Uel Magnus John, George J. S. Littlefield, Charles H. Miller, William Murray, George S. Page, and Bernard J. G. Phillips.

UNIVERSITY OF ABERDEEN.—The following degrees have been conferred:—

DOCTOR OF MEDICINE.

Douglas W. Berry (honours for thesis), James S. Anderson (commendation for thesis), Andrew Topping (commendation for thesis), Dorothy E. Bryant, Alexander C. Fowler, and Louise Tomory.

BACHELOR OF MEDICINE AND BACHELOR OF SURGERY.

With First-class Honours.—*Allan W. Downie, *Richard D. Downie, and *Alexander Lyall.

With Second-class Honours.—†Alexander G. Badenoch, William H. Harris, Charlotte S. Hendry, and †Ian W. Laing.

Ordinary Degree.—George M. Anderson, Margaret J. Anderson, James Burnett, Janet F. Burnett, Charles W. M. Cameron, Catherine J. Clark, John Clarke, Patrick G. Currid, Robert Davidson, Douglas Dean, Elizabeth A. Dunbar, Mary Esslemont, Eric C. Gordon, Murdo McKenzie Gunn, Eleanor M. Henderson, James S. Hutchison, Archibald J. Ironside, Eric J. Jolly, Bernard W. MacDonald, Finlay MacLean, †Florence J. Malcolm, John C. Milne, Hugh W. Mulligan, Robert G. Munro, Forbes R. Mutch, James H. Peters, Margaret J. Rennet, Ernest R. Sorley, John S. Taylor, Lily M. Watt, Francis L. Webster, Mabel Wilson, and Maude Wilson.

* Passed Final Professional Examination with much distinction.
† Passed Final Professional Examination with distinction.

DIPLOMA IN PUBLIC HEALTH.

Isobel C. Brown, Evelina I. Corbett, Thomas J. Davidson, George L. Duncan, Ethel E. M. Gray, Elizabeth G. McCurrach, Norman M. Maclennan, Alexander E. Reid, Harry E. Smith, Christina Stuart, Andrew Topping, and Alice M. Watt.

The following awards have been made:—The Struthers Medal and Prize in Anatomy, John W. Foster: "A Series of Preparations illustrating the Comparative Anatomy of the Temporo-mandibular Articulation." The Lizars Medal in Anatomy, John W. Foster, Arthur J. W. Wilkins (equal). The John Murray Medal and Scholarship (awarded to the most distinguished graduate in medicine (M.B., Ch.B.) of the year 1923), Alexander Lyall, M.A., Aberdeen.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—A quarterly Council meeting was held on July 12th, with Sir Anthony Bowlby in the chair. The President announced that at a meeting of the Fellows on July 5th five Fellows were elected into the Council in the vacancies occasioned by the retirement in rotation of Sir Charters J. Symonds and Sir Herbert Waterhouse, by the deaths of Sir William Thorburn and Sir Charles Ryall, and by the resignation of Mr. F. F. Burghard. The result of the poll, at which 1052 Fellows voted, was as follows :—

	Votes.	Plumpers.
James Berry	612	6
George Ernest Gask	466	28
John Herbert Fisher	445	53
Percy Sargent	445	3
William Sampson Handley ..	433	8

The above were therefore elected and Mr. Handley becomes substitute member of Council for Mr. Burghard until July, 1929, and Mr. Sargent becomes substitute member of Council for Sir William Thorburn until July, 1930. Messrs. Berry, Fisher, Handley, Sargent, and Gask took their seats on the Council.—Diplomas in Public Health were granted, jointly with the Royal College of Physicians, to 19 candidates. Diplomas in Psychological Medicine were granted, jointly with the Royal College of Physicians, to eight candidates.

The following professors and lecturers were appointed for the ensuing year :—

Hunterian Professors.—Robert Lawford Knaggs : One lecture on Leontiasis Ossea and one lecture on Osteogenesis Imperfecta. William Sampson Handley : One lecture on General Peritonitis. Charles Max Page : One lecture on the Operative Treatment of Osteoarthritis. Kenneth Macfarlane Walker : One lecture on the Internal Secretion of the Testis. Alexander Fleming : One lecture on the Employment of Antiseptics in Local and General Infection. Geoffrey Jefferson : One lecture on Injuries of the Cervical Spine. Frank Cook : One lecture on Toxæmias of Pregnancy. William Edward Gallie : One lecture on an Experimental and Clinical Study of the Use of the Fibrous Tissues in the Repair of Anatomical Defects. Sidney Forsdike : One lecture on Cancer of the Cervix. Ranald Montagu Handfield-Jones : One lecture on Retro-peritoneal Cysts—their Pathology, Diagnosis and Treatment. Ralph St. Leger Brockman : One lecture on the Problem of Drainage in Acute Appendicitis. W. H. Ogilvie : One lecture on the Infections of the Upper Alimentary Tract.

Arris and Gale Lecturers.—Hugh Ernest Griffiths : One lecture on the Relation of Diseases of the Gall-bladder to the Secretion and Functions of the Stomach and Pancreas. Cecil Pembrey Grey Wakeley : One lecture on Some Actions of Radiations on Living Tissues. Victor Ewings Negus : One lecture on New Points in the Mechanism of the Larynx.

Erasmus Wilson Lecturer.—Samuel George Shattock : Six Demonstrations on Pathological Specimens in the Museum.

Arnott Demonstrator.—Sir Arthur Keith : Six Demonstrations on the Contents of the Museum.

Sir John Bland-Sutton was elected President, and Sir Berkeley Moynihan and Mr. H. J. Waring were elected Vice-Presidents for the ensuing year.

ROYAL SOCIETY OF ARTS.—The Council of the Society attended, on July 13th, at Clarence House, St. James's, when the Duke of Connaught, President of the Society, presented the Albert Medals of the Society to Sir David Bruce and Sir Ronald Ross "in recognition of the eminent services they have rendered to the Economic Development of the World by their achievements in Biological Research and the Study of Tropical Diseases."

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.—At its annual meeting, held on July 13th, a resolution was unanimously carried accepting the Trevethin Report as a document supporting the six essentials of the policy of the Society—namely, that :—

1. A man who after exposure is properly and thoroughly disinfected by disinfectants of appropriate nature and strength, runs little risk of infection.
2. An intelligent man if furnished with reasonable instructions can, in favourable conditions, effectively disinfect himself.
3. The adoption of skilled disinfection (in disinfecting centres) is not to be recommended as part of any general system, for reasons of time, cost, and impracticability.
4. The instruction by medical officers of venereal disease clinics of male persons attending such clinics, in the preventive use of disinfectants, offers a useful means of educating the community.
5. There is no evidence of facts in support of the view that any system of disinfection would tend to increase the number of exposures and raise the disease rate.
6. The law should be altered so as to permit properly qualified chemists to sell ad hoc disinfectants, provided such disinfectants are sold in a form approved and with instructions for use approved by some competent authority.

In view of the unqualified acceptance of the Trevethin Report by the National Council for Combating Venereal Disease, the Society is prepared to form a joint committee with the National Council, under the chairmanship of Lord Dawson of Penn, to watch and further the policy based on the terms of the Trevethin Report.

ROYAL NORTHERN HOSPITAL, LONDON.—The foundation-stone of the new casualty department, which constitutes the Borough of Islington war memorial, was laid by Lady Patricia Ramsay on July 12th.

EXTENSION OF BLACKBURN ROYAL INFIRMARY.—The complete scheme for this institution, which serves North-East Lancashire, is estimated to cost £200,000. It has been decided to begin with an extension involving an expenditure of £75,000. This extension is intended as the town's war memorial.

LONDON HOSPITAL MEDICAL COLLEGE.—A lecture for senior students of the hospital and post-graduates on the Treatment of Puerperal Sepsis (a new method illustrated by charts) will be given by Dr. S. Gordon Luker on Tuesday, July 24th, at 4.15 P.M., in the Anatomical Theatre of the College.

LONDON SCHOOL OF TROPICAL MEDICINE.—As a result of examinations held at the end of this session the "Duncan" medal has been awarded to Dr. S. Peterson of the U.S. Navy. Those who passed the examinations with distinction include Dr. A. H. Baldwin, Dr. F. McCallum, Dr. S. Pampana, Dr. A. Salama, and 34 candidates satisfied the examiners.

ROYAL SUSSEX COUNTY HOSPITAL.—Recent developments at this hospital at Brighton include the new building for the orthopædic department, the money for which was largely given by the British Red Cross Society ; the gift by Lady George Nevill, in memory of her husband, Lord George Nevill, who at one time was a member of the board of management, of the whole of the equipment of her war-time hospital at Hove ; and the establishment, thanks to Miss Poulter, of a school of massage at the hospital.

THE LUNATIC ASYLUMS IN BURMA.—The construction of a third asylum is projected to relieve the congestion at present experienced in one of the two existing buildings in Burma. There is evidence in the report that excellent facilities are provided for the employment and entertainment of the patients. Alcohol and *Cannabis indica* appear to take a large share in the ætiology of insanity in Burma ; general paralysis is comparatively rare. Many of the deaths were due to pulmonary tuberculosis. During an outbreak of plague in Rangoon all the patients in the asylum received protective inoculations. No cases of the disease occurred in the asylum.

SMALL-POX PRECAUTIONS IN TERRITORIAL TRAINING CAMPS.—A statement has been issued by the Ministry of Health to the effect that, in view of the prevalence of small-pox in certain parts of the country, he has been in communication with the Army Council in regard to the precautions in connexion with the annual training camps of the Territorial Army and Officers Training Corps. No units will be sent to camp from an infected district, but units raised in a non-infected district may be sent to camp in a non-infected district. All men will be examined by an army medical officer before proceeding to camp, and during the camping period any unvaccinated men will be kept under observation.

FREE STATE COUNTY COUNCILS AND HEALTH REFORM.—At the annual meeting last week of the general council of county councils—a consultative body in which all the county councils in the Free State participate—the report of the standing committee on health matters was adopted. The report demands a series of legislative reforms in regard to health ; though a separate Ministry of Health is favoured, its immediate establishment is not pressed. It is suggested that a health council should be constituted representative of the medical and allied professions, local health authorities, insured persons, labour and other organisations concerned, and the Ministry of Education. It was considered that the minimum health unit should be the administrative county or county borough. The committee also recommended the repeal of the Medical Charities Act, the extension of medical benefit to insured persons and their dependents, and the provision of medical treatment for those unable to pay for it. They recommended the establishment of a medical service paid by the State. The committee also recommended that tuberculosis and all infectious and contagious diseases dangerous to health should be notifiable, and that the tuberculosis medical officer should be empowered compulsorily to isolate persons in cases where he considers isolation essential in the interests of public health. Other recommendations included the effective inspection of cattle in respect of bovine tuberculosis and the application of the tuberculin test to the milk-supply. It was further recommended that for every health area there should be a medical officer of health, a veterinary officer, and that there should be provision for the effective inspection of school-children. Almost all the recommendations of the Irish Public Health Council have been adopted.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, JULY 11TH.

Cost of Pensions Patients.

Mr. ALBERT ALEXANDER asked the Minister of Pensions what was the average cost per day of pensions patients at hospitals which were under the direct control of the Ministry of Pensions.—Major TRYON replied: The average is 8*s.* 2½*d.* per patient.

Small-pox and Vaccination.

Mr. BECKER asked the Minister of Health how many cases of small-pox had been notified this year; how many deaths had occurred from small-pox this year; and was he satisfied that all cases notified as small-pox were small-pox, or had any cases so notified been found to be chicken-pox.—Mr. NEVILLE CHAMBERLAIN replied: The number of cases of small-pox notified this year up to June 30th is 1225. No deaths had been registered up to the end of last week as due to small-pox, but I understand that a fatal case occurred at Gloucester with an unvaccinated child on the 8th inst. As regards the last part of the question, I am advised that, in small-pox as in other infectious diseases, errors in the initial diagnosis have occurred in some cases, but the notification returns are corrected from time to time by the omission of those cases which after notification have been found to be cases of chicken-pox, and the addition of cases originally diagnosed as chicken-pox but subsequently found to be cases of small-pox.

Mr. BROAD asked the Minister of Health if he would supply particulars of the cases of small-pox and deaths from that disease in the city of Mexico during each of the last 10 years for which figures were available.—Mr. NEVILLE CHAMBERLAIN replied: I have no information as to the number of cases of small-pox in Mexico city. The following are the particulars available in my department of the number of deaths from that disease in the city during each of the years 1913–1922: 1913, 326; 1914, 259; 1915, no figures available; 1916, 246 (10 months); 1917, 479; 1918, 140; 1919, 12; 1920, 40; 1921, 429; 1922, 404 (10 months).

Lieut.-Colonel FREMANTLE asked the Minister of Health if he would consider the transference of the administration of vaccination to the general sanitary administration under the sanitary authorities.—Mr. NEVILLE CHAMBERLAIN replied: This question has been under consideration, but I could not undertake to introduce the necessary legislation during the present session.

Sir GEORGE BERRY asked the Minister of Health if he was satisfied with the manner in which the Vaccination Acts were being administered; and, if not, if he was prepared, in view of the present serious epidemic of small-pox, to take steps to enforce rigid compliance with them.—Mr. NEVILLE CHAMBERLAIN replied: The responsibility for the administration of the Vaccination Acts rests with the boards of guardians and their vaccination officers. I am not satisfied that the Acts are being properly administered in all districts, and I am considering what steps can be taken to secure improvement in this respect.

Mr. BROMFIELD asked the Minister of Health whether the organism of vaccinia had yet been isolated; and, if not, what guarantee could be given that it was present in any given sample of calf lymph issued by his department for public vaccination purposes.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the negative. As regards the second part, I am advised that the efficacy of the lymph issued from the Government lymph establishment is adjudged by the usual laboratory tests for purity and its effect as reported by public vaccinators. I may add that the Government lymph used during 1922 for 284,000 cases of primary vaccination gave a percentage success of 99·4.

Mr. LEACH asked the Minister of Health if he would supply particulars of the cases of small-pox and deaths from that disease in Rio de Janeiro during each of the last 10 years for which the figures were available.—Mr. NEVILLE CHAMBERLAIN replied: The following are the particulars required by the hon. Member:—

Year.	Cases.	Deaths.	Year.	Cases.	Deaths.
1913	625	118	1918	—*	222
1914	5192	1230	1919	—*	305
1915	826	258	1920	324†	99
1916	449	121	1921	187†	49
1917	1530	418	1922	327‡	117

* Figures not available.
† 4 weeks missing. ‡ 3 weeks missing.

Mr. BROMFIELD asked the Minister of Health whether the glycerinated calf lymph manufactured by the Government was tested on a certain number of children before being issued to the public vaccinators, with a view to ascertaining whether it was satisfactory; and, if so, whether the consent of the parents of the children was obtained before these experimental vaccinations were carried out.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the negative, and the second part, therefore, does not arise.

Brook Fever Hospital.

Sir KINGSLEY WOOD asked the Minister of Health whether the Brook fever hospital at Shooters Hill was about to be permanently closed, and whether he could state the reason for this course.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the negative. I understand that, owing to the reduction in the number of cases of infectious disease in London, further admissions to this hospital are being stopped for the present, but the hospital will be reopened as soon as it is needed.

Medical Aid Departments.

Mr. CLARRY asked the Minister of Health if he could see his way clear to framing regulations whereby a friendly society or group of societies might form medical aid departments for the purpose of supplying medicines and surgical appliances to their members.—Mr. NEVILLE CHAMBERLAIN replied: The object which the hon. Member has in view cannot be secured without amending legislation which would be of a controversial character, and which I do not see my way to introduce. I have no power to deal with the matter by way of regulations.

Dirty Milk Vans.

Sir ARTHUR CHURCHMAN asked the Minister of Health whether his attention had been called to the lack of clean and well-ventilated milk vans on certain railway lines noted in paragraphs 42 and 43 of the interim report on milk issued by the departmental committee on the distribution and prices of agricultural produce; and whether his department proposed to take any action in the matter.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the affirmative. I propose to ask my right hon. friend, the Minister of Transport, to bring the recommendations of the departmental committee to the notice of the railway companies.

Panel Practitioners' Remuneration.

Sir KINGSLEY WOOD asked the Minister of Health whether, in accordance with the pledge given by his predecessor, he proposed to consult both the Consultative Council and representatives of the approved societies before any new terms as to remuneration and service were arranged with the medical men on the panel lists; whether he proposed to arrange such consultation before any offer as to remuneration was made; and when, and in what manner, he proposed any consultation should take place.—Mr. NEVILLE CHAMBERLAIN replied: As regards the first two parts of the question, I would refer the hon. Member to the answer which I gave him on April 11th. As regards the third part, the matter is now under consideration, and I am not yet in a position to make any statement.

Discharge of Private Lunacy Patients.

Mr. HAYDAY asked the Minister of Health by what authority the London County Council, through their asylum regulations, had interfered with the right guaranteed to a petitioner by Section 72 of the Lunacy Act, 1890, to direct the discharge or transfer of a private patient from a pauper asylum by exacting four weeks' payment if the patient was taken away, whereas in institutions for rich patients the provisions of Section 72 were punctiliously carried out and the patient was allowed to leave at once on the legal direction given by his petitioners; and would he see that this practice was stopped.—Mr. NEVILLE CHAMBERLAIN replied: Inquiry is being made by the Board of Control and I will communicate the result to the hon. Member.

Deaths from Tuberculosis.

Mr. MURNIN asked the Minister of Health the number of persons who died in England and Wales during the years 1921–22 from tuberculosis.—Mr. NEVILLE CHAMBERLAIN replied: The number of deaths from tuberculosis in England and Wales during the year 1921 was 42,678, and during the year 1922 42,777.

Cheese, Milk, and Cream Standards.

Mr. HURD asked the Minister of Health the result of his consultation with the Minister of Agriculture with a view to the adoption of the recommendations of the departmental committee for the imposition of a legal minimum standard of quality applicable to whole-milk cheese, cream, and milk powder.—Mr. NEVILLE CHAMBERLAIN replied: I understand that my right hon. friend is examining the situation with a

view to determining whether it is practicable to give effect to the recommendations of the departmental committee in regard to whole-milk cheese and cream.

THURSDAY, JULY 12TH.

Medical War Records.

Mr. EDE asked the Minister of Pensions what progress had been made with the preparation of the medical records of the war, what sum had been expended on these records up to June 30th, 1923; when it was anticipated that the record would be completed; and what would be the total cost of the same.—Major TRYON replied: I assume that the hon. Member is referring to the records of admissions to and discharges from ambulances, hospitals, or clearing stations during service. These medical records have now been sorted and indexed in one register, but as the work was commenced by the War Office and completed by the Statistical Division of my department as part of their general duties, I regret I am not in a position to state the cost without very considerable investigation.

Treatment for War Neurosis.

Mr. ROBERT RICHARDSON asked the Minister of Pensions what was the total number of pensioners receiving treatment for war neurosis and other shell-shock conditions, and whether he was satisfied with the provision made in the different regions for the treatment of pensioners suffering from shell-shock and/or neurasthenia.—Major TRYON replied: The number of patients at present receiving treatment under my department for war neurosis is about 6900. The whole question of the treatment of this very difficult condition is kept constantly under review by my medical advisers. Full provision is made for the most modern treatment. I am glad to say that our accommodation is ample and we have no waiting list.

Final Pension Appeals in 1921.

Mr. WHITELEY asked the Minister of Pensions what number of cases were dealt with before the final tribunals in 1921 and 1922 for entitlement and assessment, respectively, and the number of successful cases in each year.—Major TRYON replied: The number of appeals on entitlement decided by the tribunal during 1921 was 43,750, of which 11,500 were allowed. The comparative figures for 1922 are 37,350 and 9,980. The assessment tribunals, which did not commence work until June, 1922, decided 13,023 appeals up to the end of that year. Of these the assessment was increased in 2500 cases and lowered in 23. The final award was set aside in 2500 cases and the appeal disallowed in 8000 cases.

Institutional Treatment of Tuberculosis.

Mr. TREVELYAN THOMSON asked the Minister of Health whether he approved of the charge made to tuberculous persons in the London area in respect of institutional treatment; and, if so, why, in this respect, had the institutional treatment of tuberculous persons been differentiated from that of the other infectious diseases.—Lord E. PERCY replied: My department have approved generally of the arrangement made by the L.C.C. for the assessment of contributions payable by tuberculous persons towards the cost of institutional treatment provided by the Council. As regards the second part of the question, the statutes under which institutional treatment is provided in London for persons suffering from other infectious diseases do not authorise the recovery of any part of the cost of treatment from the patient.

Wounds on Executed Prisoner.

Mr. LANSBURY asked the Secretary of State for the Home Department whether his attention had been called to the fact that at the inquest held on Roland Duck, after his execution at Pentonville prison last week, a severe wound was found on his head and a considerable quantity of congealed blood was attached to his hair; whether the coroner had made a report to him as to how this injury was sustained; and whether the man's father and mother, who attended the inquest, had asked the Home Office to order an inquiry as to the cause of this injury.—Mr. BRIDGEMAN replied: Reports received from the prison showed that when the body was taken down there was no mark on the head, but when the body was being washed, after removal to the mortuary and post-mortem examination of the neck by the medical officer, a bruise was noticed on the forehead. The body had slipped while being placed on the mortuary table and the head had struck a slab. The medical officer called the coroner's attention to the bruise. The coroner's inquisition was sent to me. He made no report, but I have now seen his notes, which show that the jury was satisfied that the bruise was caused after the execution. Before the inquest ended the father said he was satisfied, but both parents have written since expressing dissatisfaction. They will be informed that I find no ground for further inquiry.

Infection in Public Libraries.

Colonel MORDEN asked the Minister of Health whether his attention had been directed to the danger of infection to the frequenters of public libraries through the use of books previously handled by persons suffering from infectious ailments; and whether he would take steps to investigate this menace to the public health by directing local authorities to use adequate disinfectants in the public libraries of this country.—Lord E. PERCY replied: The answer to the first part of the question is in the affirmative, but my right hon. friend is advised that medical officers of health are fully alive to whatever danger of infection there may be from this source. Special provisions as to the precautions to be taken to prevent the spread of infection through the use of library books are contained in Section 59 of the Public Health Acts Amendment Act, 1907, and that section may be put in force in any district on the application of the local authority. In the circumstances the Minister does not consider it necessary to undertake any special investigation or to issue any special instructions to local authorities on this matter.

Fifty per Cent. Pension Awards.

Mr. HERRIOTTS asked the Minister of Pensions the number of pensioners in receipt of a pension of 50 per cent. or over on March 31st, 1919, and the number of pensioners in receipt of a pension of 50 per cent. or over on March 31st, 1923, for loss of vision, for loss of limbs, for loss of hearing, for gunshot wounds, for tuberculosis, and for diseases other than tuberculosis respectively.—Major TRYON replied: The answer to the first part of the question is 252,000. In March, 1923, approximately 160,800 awards of 50 per cent. or over were in payment as follows: Eye disabilities 6600, injury to limbs (including amputations) 58,000, other wounds and injuries 22,800, ear disabilities 2800, tuberculosis 30,300, other diseases 40,300.

Small-pox and Vaccination.

Mr. TREVELYAN THOMSON asked the Minister of Health the particulars which indicated that the percentage of cases of small-pox had increased with the reduction in the number of vaccinations which had fallen from 85·6 of births in 1872–81 to 43·4 in 1912–21.—Lord E. PERCY replied: As my right hon. friend informed the hon. Member on the 4th inst., particulars as to the total number of cases of small-pox in England and Wales are not available for any year prior to 1911, and it is not, therefore, possible to give the desired information for the periods mentioned in the question. The number of cases of small-pox during each of the years 1911 to 1922, and the percentage of vaccination to births in each of those years, are given in the following table:—

Year.	Cases of small-pox.	Percentage of vaccination to births.	Year.	Cases of small-pox.	Percentage of vaccination to births.
1911	289	52·3	1917	7	42·3
1912	121	50·1	1918	63	41·5
1913	113	46·5	1919	311	40·6
1914	65	44·6	1920	280	39·5
1915	93	45·5	1921	336	38·3
1916	159	44·7	1922	973	—*

* Not yet available.

White Lead Convention.

On a vote of £185,969 for the salaries and expenses of the Home Office,

Mr. A. GREENWOOD moved to reduce the vote by £100. He said there were far too many cases of lead poisoning at the present time, and he attributed that to the ineffective administration of the regulations by the Home Office. The whole industry was united, and there was no real reason which should debar the Home Secretary from enforcing on the Cabinet the importance of an early ratification of the White Lead Convention.

Mr. TURNER seconded.

Mr. G. LOCKER-LAMPSON (Under-Secretary for the Home Department) said the question of ratifying the White Lead Convention agreed upon at Geneva was not quite so easy as some people might think. The Minister of Labour who was at Geneva agreed to the terms of the agreement, but unfortunately since that date a certain misunderstanding had arisen about one of the principal agreements under the Convention—the employment of young persons under 18 and the employment of women for industrial purposes. Apparently a good many members at Geneva were under the impression that that article referred only to the painting of houses. Other members declared that it referred to the whole of industrial painting. Until that point had been cleared up satisfactorily it was rather difficult for this country to agree to the ratification of the Convention. He hoped, however, the delay would not be very long. Since the Geneva Convention sat a new process had been introduced

involving the use of wet sand-paper, by means of which the old dangers arising out of dry rubbing down could be prevented. He thought it was absolutely essential that further experiments should be made with this new material before a definite decision was come to. The Home Office was at present receiving deputations on the subject.

Workmen's Compensation.

Mr. G. SPENCER asked whether the Home Secretary would appoint another medical referee under the Workmen's Compensation Act for the County of Nottingham for dealing with certain industrial diseases. At the present time cases had to be sent to Sheffield, and the men affected had to pay their expenses to Sheffield to be examined in cases in which the certificate given by the certifying surgeon was questioned by a colliery company. He was sorry to say that the workmen in the county of Nottingham had lost faith in the present medical referee, not because they alleged he was unfair, or that he acted in an *ex parte* manner, but because they believed that he was not conducting cases consistently with the description of the disease in the Act. He belonged to the school of medical opinion which held that if objective symptoms were not present, then the disease did not exist.

Mr. LOCKER-LAMPSON said that the point raised by Mr. Spencer was an important one, and the Home Office would consider it.

The motion to reduce the vote was negatived and the vote was agreed to.

FRIDAY, JULY 13TH.

Sale of Liquor to Children.

On the motion for the third reading of the Intoxicating Liquor (Sale to Persons under 18) Bill,

Sir F. BANBURY moved the rejection of the measure. He said he wished to call the attention of Viscountess ASTOR and a number of those who supported the Bill to a speech made by Sir S. Russell-Wells only a few days previously, in which he said that beer was a food and contained a certain quantity of nourishment, and also that tea was a pure drug. Therefore the supporters of the Bill were endeavouring to prevent young people from getting what a medical authority declared to be nourishment and to make them take instead something which was after all merely a drug.

Viscountess ASTOR thanked the Government for having given facilities to the Bill.

The Bill was read a third time by 257 votes to 10.

Small-pox and Vaccination.

Lieut.-Colonel ARTHUR MURRAY asked the Minister of Health whether he could state how many of the 408 persons noted as suffering from small-pox for the four weeks ended June 30th were vaccinated at birth and/or were vaccinated at a later period.—Mr. CHAMBERLAIN replied: Information as to the vaccinal condition of these persons is at present available in only 227 of the cases. This information is given in the following statement, but the particulars are subject to revision in the light of further information which may subsequently be received:—

Unvaccinated.	Vaccinated in infancy.	Vaccinated later.		Revaccinated.	Stated to have been vaccinated but showing no cicatrix of vaccination.
		After infancy and before exposure to infection.	After exposure to infection.		
188	31*	1	3	2	2

* Including 2 suspected cases.

Institutional Treatment of Tuberculosis in Leicester.

Major GUY PAGET asked the Minister of Health whether he was aware that the cases for Government treatment for tuberculosis were limited in Leicester to 30; and, seeing that, in view of the fact that every insured person contributed to this treatment, this was an insufficient number, and that in consequence the voluntary institution was overcrowded with surgical tuberculous cases which largely hampered its other work, would he inquire into the matter.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first part of the question is in the negative. On July 1st the number of persons receiving institutional treatment for tuberculosis from the Leicester Town Council was 217. I am not aware of the actual number of cases of surgical tuberculosis included in this figure, but the provision made by local authorities for the treatment of this disease would naturally have the effect of relieving the pressure upon voluntary institutions. In the circumstances I see no necessity for any special inquiry, and I may point out that the health insurance contributions payable by insured persons do not now include any payment towards the cost of institutional treatment for tuberculosis.

MONDAY, JULY 16TH.

Child Mortality.

Mr. WILLIAM THORNE asked the Minister of Health the number of children who died before the age of 12 months in the London County Council area, Glasgow, West Ham, and Stoke-on-Trent during the year ending March, 1922.—Lord E. PERCY replied: The figures asked for in the question as regards London are 8334; Glasgow, 3644; West Ham, 705; and Stoke-on-Trent, 978. The corresponding infant death-rates per 1000 births for London, West Ham, and Stoke-on-Trent were 82, 83 and 138 respectively.

Insulin Treatment.

Sir WALTER DE FRECE asked the Minister of Health what steps were being taken to bring the insulin treatment within the reach of the very poor.—Lord E. PERCY replied: It is within the powers of guardians, on the advice of the medical officer, to pay for the supply of insulin in cases of destitution.

Pensions Administration in the North of England.

Mr. POTTS asked the Minister of Pensions whether the Yorkshire regional headquarters of the Ministry of Pensions were to be transferred to Newcastle; whether he would state the population in the present Yorkshire area and the population in the northern area which was at present administered from Newcastle; whether the population in the Yorkshire area was approximately nearly double that of the northern; and, if it was eventually intended to administer the entire North of England from one centre, would he consider whether Leeds would offer a balance of advantages.—Captain CRAIG replied: The answer to the first part of the question is in the affirmative; to the second and third parts, that the population of the Yorkshire and northern regions, according to the census of 1921, is 3,917,713 and 2,754,187 respectively; and to the last part that it is not in contemplation to administer the entire north of England from one centre.

Child Adoption.

Mr. GERALD HURST asked the Secretary of State for the Home Department whether he had considered the Report on child adoption made by the committee appointed to make such Report by the Home Office and the two Bills which had been introduced to give effect to its recommendations; and if he could hold out any hopes of the Government bringing in or giving facilities to any Bill for this purpose.—Mr. BRIDGEMAN replied: Yes, Sir. I am afraid the Government cannot undertake to introduce legislation on this subject at the present time, and the pressure of Parliamentary business makes it impossible to give special facilities to a private Member's Bill.

Infantile Mortality.

Captain BOWYER asked the Minister of Health whether he would give the most recent figures showing the death-rate per 1000 of legitimate and illegitimate infant children, respectively; and would he say how these figures compared with those of ten years ago.—Mr. NEVILLE CHAMBERLAIN replied: The most recent figures are those for 1922, in which year the infant death-rate per 1000 children born was 74 in the case of legitimate children and 139 in the case of illegitimate children. The corresponding figures for the year 1912 were 91 and 181 respectively.

Dentists Bill.

The Dentists Bill was read a third time. (The object of this measure is to give ex-Service studentsf or the dental profession extra time to qualify under the provisions of the 1921 Act.)

TUESDAY, JULY 17TH.

Visiting Committees in Mental Hospitals.

Mr. WILLIAM ALBERT JENKINS asked the Minister of Health if he was aware that at present Poor-law guardians have not the right of full representation upon the visiting committees of mental hospitals; and would he take steps to make provision for this right in the Bill about to come before Parliament.—Lord E. PERCY replied: The answer to the first part of the question is in the affirmative, and I doubt if it is desirable to alter the existing law in the direction suggested.

DONATIONS AND BEQUESTS.—Mr. Thomas Henry Chadwick, mill manager at Oldham, bequeathed over £100,000 in charities, including £9000 to the Oldham Royal Infirmary to endow nine Thomas Henry Chadwick beds, and £1000 life-policy to the same institution; £1000 each to the Deaf and Dumb Institution, Oldham, the Oldham Nursing Association, and the British Red Cross Society; £500 each to the Workshops for the Blind, Oldham, the National League of the Blind, Dr. Barnardo's Homes, and St. Dunstan's Hostel; the residue—apart from other bequests—to establish almshouses for aged or infirm persons over 60 years of age resident in Oldham for 25 years and members of the Church of England.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, July 23rd.—10 A.M., Mr. Maingot: Surgical Pathology. 2 P.M., Mr. Addison: Surgical Wards. 3 P.M., Mr. Simson: Diseases of Women.

TUESDAY.—10 A.M., Mr. Steadman: Dental Dept. 12 noon, Dr. Burrell: Chest Cases. 2 P.M., Mr. Sinclair: Surgical Out-patients.

WEDNESDAY.—10 A.M., Dr. Saunders: Medical Diseases of Children. 11 A.M., Mr. Simson: Gynæcological Demonstration. 2 P.M., Dr. Burnford: Medical Wards.

THURSDAY.—10 A.M., Dr. Grainger Stewart: Neurological Dept. 2 P.M., Mr. MacDonald: Genito-Urinary Dept. 3 P.M., Dr. Scott Pinchin: Medical Out-patients.

FRIDAY.—11 A.M., Dr. McDougal: Electrical Dept. 12 noon, Mr. Endean: Venereal Diseases. 2 P.M., Mr. Banks-Davis: Throat, Nose, and Ear Dept.

SATURDAY.—9.30 A.M., Dr. Burnford: Bacterial Therapy. 10 A.M., Dr. Saunders: Medical Diseases of Children. 10 A.M., Mr. Banks-Davis: Operations on Throat, Nose, and Ear.

Daily, 10 A.M. to 6 P.M., Saturdays, 10 A.M. to 1 P.M., In-patients, Out-patients, Operations, Special Departments.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Demonstration of Clinical Cases at 3.30 P.M.

MONDAY, July 23rd.—Dr. J. Browning Alexander: Medical.

TUESDAY.—(3 P.M.) Mr. Howell Evans: Surgical.

WEDNESDAY.—Mr. Norman B. B. Fleming: Eye Cases.

THURSDAY.—Mr. H. W. Carson: Surgical.

FRIDAY.—Dr. C. E. Sundell: Diseases of Children.

Appointments.

ANDERSON, J. B., M.B., Ch.B Aberd., has been appointed District Medical Officer and Public Vaccinator for Bishopwearmouth, West District.

DAVIDSON, G. S., M.B. Aberd., F.R.C.S. Edin., to be Extra Physician (Honorary) to the Aberdeen Maternity Hospital, with special charge of the Out-patient Department.

DAVIES, J. C., M.B., B.Ch. Oxf., Certifying Surgeon under the Factory and Workshop Acts for the Chipping Campden District of the County of Gloucester.

GUEST, D., M.B., Ch.B., Assistant Bacteriologist, University of Sheffield.

LAMONT, D. C., M.B. Edin., D.P.H., Assistant Medical Officer of Health and Tuberculosis Officer; and FRAZER, W. M., M.Sc., M.B., Ch.B. Liverp., Assistant Medical Officer of Health and Assistant School Medical Officer at Blackburn.

M'KENDRICK, W., M.D. Glasg., D.P.H., Medical Officer of Health for Hartlepool.

M'KINNEY, J. W., M.B., Ch.B. Edin., D.P.H. Dub., Medical Officer of Health to the Ballymoney Urban District Council.

Queen Charlotte's Lying-in Hospital: CUTHBERT, J. R., M.B., Ch.B. Otago, N.Z., and HALL, N. B., M.B., B.S. Adelaide, Assistant Resident Medical Officers.

Vacancies.

For further information refer to the advertisement columns.

Canterbury, Kent and Canterbury Hospital.—Res. M.O. £175.
Cheshire Joint Sanatorium, Loggerheads.—A.M.O. £350.
Chesterfield and North Derbyshire Royal Hospital.—Jun. H.S., Cas. O. and Orthopædic H.S. £175 and £170 respectively.
Dreadnought Hospital, Greenwich, S.E.—H.P. £150.
Durham County Hospital.—H.S. £200.
Earlswood, Royal Earlswood Institution.—Med. Supt. £800.
East African Medical Service.—M.O. £600.
East London Hospital for Children.—H.P. £125.
Glasgow University.—Chair of Public Health.
Hemel Hempstead, West Herts Hospital.—Res. M.O. £200.
King's College Hospital, Denmark Hill, S.E.—Jun. Anæst.
King's Lynn, West Norfolk Hospital.—Asst. Res. M.O. £100.
Leeds Public Dispensary.—Sen. Res. M.O. £200.
Liverpool, West Derby Union.—Asst. Res. M.O. £300.
London Hospital, E.—Second Registrar to Ear, Throat and Nose Dept. Also First Asst. to each of the Surgical Firms. £400.
Manchester, Baguley Sanatorium.—Third Asst. M.O. £400.
Manchester Royal Eye Hospital.—Jun. H.S. £120.
Manchester Royal Infirmary.—Asst. Res. M.O. £100.
Manchester, Victoria Memorial Jewish Hospital.—Hon. S.
Metropolitan Ear, Nose, and Throat Hospital, Fitzroy-square, W.—Non-Res. H.S. £150.
Mid-Wales Counties Mental Hospital, Talgarth, Breconshire.—Med. Supt. £800.
Middleton-in-Wharfedale Sanatorium, Ilkley.—Res. A.M.O. £325.
National Hospital for Diseases of the Heart, Westmoreland-street, W.—Res. M.O. £150.
Northampton County Mental Hospital.—Locum. £8 8s. weekly.
Nottingham Children's Hospital.—Res. H.S. £150.
Rotherham Hospital.—Jun. H.S. £150.
Royal Naval Medical Service.—Surgeon-Lieutenants.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—Cas. O. £150.
St. Andrews University Medical School, Dundee.—Chair of Medicine.
St. Bartholomew's Medical College.—Demonstrator of Physiology.
Salvation Army Mothers' Hospital, Clapton.—Sen. Res. Med. Woman.
Tiverton Hospital, Devon.—H.S. £100.
West African Medical Service.—M.O. £660.
Windermere, Ethel Hedley Hospital for Crippled Children.—H.S. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointment: St. Just (Cornwall).

Births, Marriages, and Deaths.

BIRTHS.

ALLCHIN.—On July 9th, at "The Briars, Northwick Park-road, Harrow, the wife of F. M. Allchin, M.B. Lond., of a son.

FIRTH.—On July 13th, at Manchester-square, W., the wife of Douglas Firth, M.D., of a daughter.

HOLMES.—On July 14th, at 29, Manley-road, Whalley Range, Manchester, to Dr. and Mrs. A. Hillyard Holmes, a daughter.

MOORHEAD.—On July 12th, at Little Squerryes, Westerham, the wife of R. Leishman Moorhead, M.B., C.M., of a daughter.

MARRIAGES.

BLOCKLEY—MYERS.—On July 10th, at St. John's Church, Torquay, John P. Blockley, F.R.C.S. Edin., to Effie, widow of James Nutter Myers.

EDEY—EWALD.—On July 9th, at Christ Church, Ramsgate, Thomas Hugh Edey, M.R.C.S., L.R.C.P., to Gladys Yarborough, younger daughter of the late Henry B. Ewald and Mrs. Ewald, of Nelson-crescent, Ramsgate.

DEATHS.

CODNER.—On July 12th, at Woodside, Corfe, near Taunton, John Codner, M.B., C.M. Edin.

PARE.—On July 13th, John William Pare, M.D., L.D.S. Eng., F.R.S. Edin., aged 62.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

THE LANCET: SUBSCRIPTION RATES.

INLAND	One Year	£2 2 0
	Six Months	1 1 0
	Three Months	0 10 6
ABROAD	One Year	2 10 0
	Six Months	1 5 0
	Three Months	0 12 6

ROYAL SANITARY INSTITUTE.—The thirty-fourth congress will take place at Hull from July 30th to August 4th, under the presidency of the Rt. Hon. T. R. Ferens, J.P., High Steward of Hull. The inaugural meeting will be held at the Royal Institution, Albion-street, on July 30th at 5 P.M. Sections will be devoted to sanitary science, personal and domestic hygiene, engineering and architecture, and maternity and child welfare (including school hygiene). There will be conferences of the following public health workers: representatives of sanitary authorities, engineers and surveyors, health visitors, port sanitary authorities, veterinary inspectors, and medical officers of health. The meetings of sections and conferences will be held in the School of Art, Anlaby-road, and in the Guildhall. On July 31st, at 8 P.M., Sir Alexander Houston will lecture on "A Pure Water Supply," and on August 2nd, at 8 P.M., Mr. B. Seebohm Rowntree will lecture on "Industry and National Welfare."

An exhibition of apparatus and appliances relating to health and of domestic use will be held, in connexion with the congress, at the Wenlock Barracks, Anlaby-road. Fellows, members, and associates of the Institute are supplied with tickets (£1 11s. 6d. each) on application to the Secretary before the congress, at the offices of the Institute, 90, Buckingham Palace-road, S.W. 1. Tickets for those not connected with the Institute will be issued up to July 27th at the offices of the Institute, or at the offices of the local treasurer at the City Treasurer's Office, Guildhall, Hull, and on the following days at the Reception Room in the School of Art. Ladies' tickets (not including copies of the proceedings) 10s. 6d. each. Lists of hotel and boarding-house accommodation may be obtained on application to the secretaries.

Notes, Comments, and Abstracts.

TYPHUS FEVER EPIDEMIC AMONG THE GREEK REFUGEES.

BY SIR PATRICK HEHIR, K.C.I.E., C.B., C.M.G., M.D. BRUX., F.R.C.S., F.R.C.P. EDIN.,
MAJOR-GENERAL, I.M.S. (RET.): MEDICAL ADVISER, BRITISH RED CROSS SOCIETY IN GREECE.

IT has fallen to my lot to see a great deal of typhus among the Greek refugees during the last four and a half months. As the outbreak presents many points of difference, epidemiologically and otherwise, from the disease as ordinarily met with elsewhere, an account of it may be of interest. The Greek refugees primarily brought the infection with them, and have been moving from one place to another carrying the disease, either in the incubating stage or in a mild ambulatory form. The serious cases are, of course, incapable of movement with the masses.

Epidemiology.

The epidemiological history of the present outbreak is easily understood if one pictures the conditions, economic, political, and military, that have been in existence in relation to these refugees since last autumn. Apparently there is a gradual rise in the intensity of the epidemic until it reaches its acme; this continues for a few months and then the epidemic gradually subsides. There are, however, oscillations in the intensity which, I believe, are mainly associated with variations in meteorological conditions, but doubtless other accidental factors are concerned. With us it began at the end of January, gradually rose in numbers and severity of attacks, reached a maximum about the first fortnight in March, remained stationary for a month or so, and is now undergoing a marked abatement.

It is noteworthy that in areas where refugees have been widely dispersed on the land there has been no typhus, or it has not become epidemic when introduced. Other things being equal, the intensity of the epidemic appears to depend largely upon the economic conditions in existence. The relation of typhus to overcrowding, long misunderstood, is now known to be easily explained by the part that human lice play in the disease. The brunt of the epidemic has been borne by the larger towns—e.g., Athens and its environs, Salonica, Patras, Corfu—the smaller towns escaping to a considerable extent, the incidence being related to the density of population on the occupied area. Whole rural districts in Macedonia and Western Thrace have escaped altogether. The housing conditions of the refugees, their hardships—especially insufficient food and exposure—have considerably lowered their resistance to disease, which, except in the case of minor maladies, runs a serious course and is frequently fatal. This high mortality is important, as it has aroused antipathy to the hospitals; early cases of sickness are hidden, and often hospital relief is only sought when the patient is dangerously ill, this being one of the ways in which typhus is being spread.

The outbreak attained its maximum of intensity in mid-winter. In colder weather the people are more crowded together; they wear thicker clothes, which foster lice, and bathe less frequently. Throughout the winter refugees were packed with the ordinary civil population in the waiting rooms of railway stations and in other places; contact cases were therefore more frequent. As I write this in the British Red Cross train at Salonica railway station, a refugee-train is in a siding; in and around the station yard are, roughly, 500 refugees, all on the way to Seres (Thrace) to take up work on the land. The same sort of arrivals and distributions are occurring in many large railway stations; it is easy to see how communicable disease spreads rapidly among them, and also reaches the stationary populations of towns.

Overcrowding is, however, only one of the factors that enter into the epidemiology of typhus. Other hardships exist: A very large percentage of the refugees get only a bare subsistence allowance of food. In some districts men who can work get no food dole, and out-of-work women get only 6 to 8 ounces of bread or flour a day. Until a few months ago few refugees had a change of clothing; undergarments were especially scarce. A great deal of help has been given them now in this respect, and I know of no camp of any duration that has not been relieved. With only one suit of clothes the practical difficulties of delousing are obvious; the suit is put through the steam disinfector and dried while the refugee is having his bath. The sanitary condition under which refugees lived for months after their return to Greece was indescribably bad; it has, in the last two months or so, been greatly ameliorated.

It is superfluous to state that the infected human louse is the intermediary in the transmission of typhus; ordinarily there is no direct communication of the disease from man to man. If it were possible to exterminate human lice in an infected area the disease would cease. All our radical preventive measures are based on this knowledge. Experienced local medical administrators act on the principle that if there are no lice on the people themselves and their clothes they cannot give the disease to others. Somehow it has got abroad that it is only the body-louse that acts as a carrier. I am all but morally certain that this is not the case, and that the exculpation of *P. capitis* is a dangerous theory.

The micro-organism of typhus passes through a developmental stage in the louse; in that insect it is intracellular, develops, is set free, and is finally discharged into the oral apparatus, from which it is introduced into man. In man it again becomes intracellular, and from the infected cells it is thrown into the blood with its toxins. The louse does not transmit the virus until four days have elapsed from the time of its infection; infection of man is in the vast majority of cases through the bite of the louse, and the insect's excreta rubbed into scratches of the skin is also believed to give rise to infection in a small number of cases. So far as I can discover, no original work is being done during this epidemic in regard to the relation of the louse to typhus.

The infectious diseases hospitals for typhus cases in refugees are not ideal institutions, but they might be worse. There is usually a sufficient number of sick attendants, nurses, and doctors, but want of experience as to how to deal with the disease has been evident in several local epidemics. The arrangements for protecting the hospital staff from infected lice was one of the most serious defects I came across. When I visited an infectious diseases hospital some weeks ago a long white coat was given me to wear in the wards. After I had put it on one of the hospital orderlies picked off a louse from the neck, remarking that it was seldom he found one on the assistant director's gown which I was wearing. In one infectious diseases hospital the arrangements for delousing patients admitted were of the most elementary kind, except that a steam-disinfector was occasionally used for the clothing when water was available. There was no bathing of patients on admission, but the hair was cut short. I found that the sanitary arrangements in wards and latrines called for serious improvement—some of the wards were offensive, as several cases of incontinence of urine and fæces were present and the nursing and cleanliness were unsatisfactory. In our own camp one day I found that three cases which the Greek medical officer (himself a refugee) had diagnosed as "fever" had been allowed to remain in the main blocks. All three had lice on their clothes; they were all cases of typhus and two of them already had the rash. In one town a severe epidemic of influenza was reported to exist, but the high mortality aroused suspicion and inquiries by experts were made; it was found that influenza was the minor disease and typhus the real epidemic. The same history was given me by the controlling medical authority in regard to two other towns. As the result of this want of experience several doctors and nurses taking no precautions got the disease and died. It is all but morally certain that anyone attending typhus cases without a knowledge of the nature of the disease will become infected himself sooner or later. It is important to educate the subordinate staff of these hospitals in the ætiology of typhus and the principles adopted in the prevention of infection.

(*To be continued.*)

MEDICAL WORK OF THE MISSION TO LEPERS.

THE forty-eighth annual report of the Mission to Lepers,[1] presented at the annual general meeting of members of the mission at the Central Hall, Westminster, on May 10th, contains a chapter devoted to the medical work of the mission, in which short statements by various medical men and women are quoted. The mission cares for 7735 leper inmates in its own and aided institutions, and also for over 600 untainted children, who are educated and trained in separate homes to become useful members of the healthy community. At Dichpalli, near Nizamabad, Deccan, India, improved results have been obtained by intravenous injection of the ethyl esters of chaulmoogra or hydnocarpus oils, as opposed to intramuscular injection. "This means that very much more of the drug is administered, with consequent signs of improvement. In nodular cases an auto-vaccine is prepared for each patient." In some cases the two methods are combined. The conditions of unrest in China militate against the handling of the leper problem: "In Siao Kan (Central China), since the middle of the war period, we have only encouraged the more pronounced, or chronic, cases to come into residence. This means that we have turned away

[1] "A Fruitful Field." Mission to Lepers, 33, Henrietta-street, Covent Garden, London, W.C. 2. 6*d*.

the very cases which the treatment would have best served, for undeniably the esters act most rapidly in the early stages of the disease." From the Fusan Leper Asylum, Korea, the honorary superintendent writes: "Before we began the chaulmoogra oil treatment our death-rate was always as high as 25 per cent. The inmates had little or no hope of a cure; . . . . it was with the greatest difficulty that they could be got to do any kind of work. Now, with the exception of those who are maimed or blind. . . . they form a hive of industry and are as happy a crowd as one can see anywhere. We have already discharged nine cases in which no trace of the disease could be found; and there are, perhaps, double that number who have no active symptoms though they still have some anæsthetic patches. . . . In the first year of the treatment the death-rate was reduced from 25 to 15 per cent., though only about half the patients were given the injections. Since then the percentage in successive years came down to 9, 6, 6, 5, 4, and for the past year it stands at 2½ per cent.; but as half the deaths resulted from an epidemic of typhoid, it may be said that the death-rate from normal causes was only 1¼ per cent. This is specially remarkable when it is remembered that only cases far on in the disease have been admitted for several years. These results are from Dr. Wilson's method of intramuscular injections of whole chaulmoogra oil, camphorated. The new Dean treatment with ethyl esters of chaulmoogra oil gives promise of still better results." In a short article appended to the report Dr. E. Muir, leprosy research worker in the School of Tropical Medicine, Calcutta, states that the most hopeful feature in connexion with leprosy in India is the increasing interest being taken in the problem by the medical profession and the public alike. The leper beggars in the streets have, he remarks, generally reached a stage at which the lepra bacillus has died out of the system; although there is danger from this source, the chief danger is from those who mix in various grades of society, from the highest downward, who are either unaware of, or are concealing, the fact that they are disseminating the disease. Dr. Muir has "come across cooks and house-servants, schoolboys attending school, students attending college, teachers of both sexes instructing the young, confectioners serving over the counter, and men and women in other walks of life, all in a position to spread the disease to those around them."

A NEW GAS-MASK.

CONSIDERABLE study has been devoted since the war to gas warfare in the United States, and the Bureau of Mines of Pittsburg in Pennsylvania has in consequence developed a "universal gas-mask,"[1] which, with its harness, weighs 8½ lb., and protects, though for a short time only, against small doses of most noxious gases. It produces no oxygen, so cannot serve as a protection in atmospheres deprived of oxygen, and no atmosphere which extinguishes a candle can be entered with reliance on this mask; a self-contained oxygen-breathing apparatus must then be used. In this "universal gas-mask" the entering air first passes through (*a*) an activated charcoal, to remove organic vapours, then through (*b*) a filter of cotton-wool to remove smokes, dusts, and mists; next comes (*c*) caustic soda, fused on pumice stone, to remove acid gases. These are followed by (*d*) another cotton-wool filter; (*e*) fused calcium chloride, to extract water vapour which would inhibit the action of the next absorbent; (*f*) "hopcalite," a mixture of oxides of manganese and copper, with sometimes silver and cobalt, to destroy carbon monoxide; and finally (*g*) silica gel for absorbing ammonia. This mask is considered to be safe for six hours of use. It has been used for 14 hours, but not without great risk, for when carbonic oxide absorption is completed and that gas is coming through no warning is given. How thirsty the wearer must have been after inspiring air all that time through fused calcium chloride, and in the dry atmosphere of the United States, too! A smaller equipment for firemen weighs 5½ lb., and gives protection for four hours.

THE TRAINED CLIMBER.

MANY medical men know the value of Swiss mountain air for holidays after heavy work; some make a point of spending a month every year there. For the strenuous mountain-climbing is an attraction, and it is of interest to learn that for the timid amateur who dreads being a drag on other climbers a scientific course of instruction, theoretical and practical, in mountaineering will be given at the end of July in the beautiful village of Klosters, in the Grisons district, at a fee of £6 6s., including board. Full particulars may be had from Gustav Walty, Klosters.

Of importance in this connexion is an article on Muscular Exercise by Prof. A. V. Hill, F.R.S., in *Nature* of July 14th, in which recent work on muscle contraction and recovery is summarised, leading to the modern view that man's power of taking exercise, whether violent or prolonged, depends largely on his ability to run into debt for oxygen. In prolonged effort, such as that associated with climbing, the healthy man is limited not by the magnitude of "debt" into which his body can run—not, that is to say, by the lactic acid maximum of his muscles—but chiefly by the maximum rate at which he can take in oxygen. With regard to the economical use of muscle by the trained athlete, Prof. Hill writes as follows:—

"Clearly if a given movement can be carried out more economically—i.e., at the expense of less energy—then less oxygen will be required for it, and its maximum duration can be increased. . . . This economy of effort can, in part, be taught; but just as all the practice in the world will not turn some quite intelligent people into mathematicians, so all the practice in the world may never turn some quite powerful and well-developed people into first-class athletes. Training and practice are essential, but they can only build on an aptitude already there. If a subject uses his muscles uneconomically . . . he will need an excessive supply of oxygen. Consequently he will be an ineffective athlete . . . he is uneconomical. Athletic prowess depends not only upon a large oxygen supply, but upon a low oxygen requirement."

Skill, power, and economy of muscular effort result, Prof. Hill says, from the effectiveness of the "quick, silent, overmastering, and generally unconscious reactions, dictated by the nervous system on the receipt of urgent messages from tendons, joints, and muscles, or from the little sense organs associated with the ear. . . . The instinctive skill, quickness, and economy of the gymnast or climber, of the mechanic, airman, tennis-player, or athlete, depend upon a vivid and readily reproducible picture in the brain or nervous system, 'a picture,' as Pear puts it, 'of muscular exercise in terms of the sensations which effective and successful movements produce.'"

These considerations are very pertinent to the climbing course at Klosters, and a timely study of them by the would-be climber might save him disappointment.

THE DRIVING GRIP IN GOLF.

To the Editor of THE LANCET.

SIR,—Professional golfers should be grateful to Dr. Wm. Cuthbert Morton for the scientific confirmation in your issue of June 30th of the fact long appreciated by professionals, but difficult to convey to pupils, that the golf club must be held with the wrist slightly extended, "especially the left one," if full power is to be exerted in the grip. Can you explain why this should be? I find golf pupils are much more ready to obey instruction when a logical explanation of the reason for a position can be given. The slanting grip of the fingers with extended wrist seems unnatural and uncomfortable to most beginners.

One further point which Dr. Morton does not elaborate is the general impression among professionals that the grip is principally maintained by the forefinger and thumb of both hands. The real gripping power is, of course, in the flexion of the middle, ring, and little fingers, whereas the strain felt between or with the first finger and thumb is due to the sharp contraction of the first interosseous muscle which approximates finger and thumb to prevent the handle of the club from dropping into the groove or web between them. I am, Sir, yours faithfully,

DAVID ANDERSON.

York Gate, Regent's Park, July 12th, 1923.

PROFESSIONAL CLASSES AID COUNCIL.

THE Professional Classes Aid Council, reconstituted in April, 1921, to carry on and extend the work arising out of the Professional Classes War Relief Council, has now completed its second year of work. The council exists to relieve, or assist in relieving, distress among the professional and other highly educated classes and their dependents, and that work has been steadily consolidated during the past 12 months. As a general rule the council does not give financial assistance to persons suffering from misfortune which could have been naturally foreseen and reasonably provided against, although in such cases helpful advice can frequently be offered. The aim in giving financial assistance is to enable the recipient to become independent of further help. Doctors, nurses, and medical students were among those helped directly and indirectly during 1922, the council of the association being careful to avoid usurping the functions of existing benevolent funds. The direct relief given is at present severely limited by want of funds. The hon. treasurer of the association (of which Sir Clifford Allbutt is a patron and Dr. G. Newton Pitt, representing the Royal Medical Benevolent Fund, a member of the council) is Mr. E. W. Monkhouse, and the offices are at 251, Brompton-road, London, S.W. 3.

[1] The Military Surgeon, May, vol. lii., p. 555.